

NETWORK

THE RAILWAYS OF AUSTRALIA QUARTERLY

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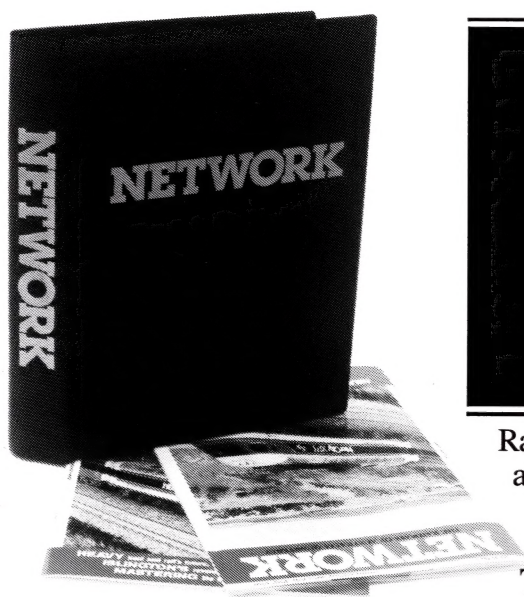


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THE RAILWAYS OF AUSTRALIA QUARTERLY

Volume 28, Number 4
October, November, December 1991



COVER: The first of 14 GE Dash-8 locomotives, remanufactured from old Alco units, in Perth prior to delivery. The contract from BHP Iron Ore is worth more than \$40 million. Twelve of the 3000kW (4000hp) locomotives will operate on the Newman to Hedland railroad with the remaining two joining the Shay Gap to Finucane fleet. The new Dash-8 locomotives provide more power, higher adhesion, return significant fuel savings and cost 80 per cent less to maintain than the locomotives they replace. BHP Iron Ore, with Goninan, initiated the remanufacture of heavy haul locomotives.

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THE NATIONAL RAIL CORPORATION (NRC) FROM EARLY NEXT YEAR BECOMES THE SOLE MARKETER OF INTERSTATE RAIL FREIGHT

The signing of a formal agreement between the Commonwealth and State governments is an important event in the history of rail transport in Australia

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BOOZ-ALLEN & HAMILTON PTY LTD, SYDNEY-BASED CONSULTANTS, HAVE PRODUCED A STUDY REPORT WITH RADICAL CHANGES RECOMMENDED FOR RAIL FREIGHT

The report will be considered by the newly-formed NRC. It envisages the movement of all westbound freight through Melbourne

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CHAIRMAN OF THE NATIONAL FREIGHT INITIATIVE TASK FORCE, TED BUTCHER, ADDRESSES THE FIRST NATIONAL FREIGHT CONGRESS

The NRITF was responsible for creation of the National Rail Corporation. The day after its formation Mr Butcher was speaking to a congress of mainly road transport operators

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WITHIN TWO YEARS RAIL TRAVEL BETWEEN SYDNEY AND MELBOURNE WILL BE AT SPEEDS UP TO 160KM/H REDUCING THE TRAVEL TIME TO 10 HOURS

The rolling stock for the fastest trains yet between the two major capital cities is now being built by ARB Transportation. It includes sleeping cars and deluxe sitting cars to a new design

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ONE HUNDRED YEARS AGO THE PICTURESQUE LINE FROM CAIRNS TO KURANDA BEGAN OPERATION. TODAY IT'S POPULARITY HAS INCREASED

The centenary of the Kuranda line was celebrated with a steam train journey that recalled the early days and paid tribute to the line's pioneer builders

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A SOUTH AUSTRALIAN COMPUTER SYSTEM FOR THE MANAGEMENT OF LONG-HAUL TRAINS IS AROUSING INTERNATIONAL INTEREST WORLD-WIDE

Significant savings in energy, reduced wheel and brake wear, and better timekeeping are the benefits. The system is suitable for single-track long-distance operations.

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DOMESTIC FREIGHT HAS GROWN FOR V/LINE TO MORE THAN TWO MILLION TONNES A YEAR – ALMOST DOUBLE THE FIGURE OF A YEAR AGO

Marinus Van Onselen, Business Manager Intermodal for the Victorian Public Transport Corporation looks at this growth from a personal perspective and sees a good future for rail

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TWO QUEENSLAND RAIL LINES, ALTHOUGH 67 YEARS APART IN THEIR CONSTRUCTION, PROVIDE A TWIN SERVICE TO THE GULF SAVANNAH REGION OF THE STATE

Michael Schrader says the two lines clearly demonstrate the change in approach, philosophy of construction and technology in the decades which separate them

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THE EXECUTIVE DIRECTOR'S COLUMN



National Rail Corporation – a reality

Readers of *Network* will know that, at an historic Special Premiers' Conference held in Sydney on 30 July 1991, an agreement was signed to formally establish Australia's National Rail Corporation. We have referred frequently in *Network* to the formation of the Corporation during the negotiation phase; it has now become a reality.

Those with an interest in ensuring that Australia's railways survive to fulfil their appropriate role in our country's transport system will congratulate the people responsible for bringing the NRC to its present stage. Chairman of the National Freight Initiative Task Force, Mr Ted Butcher, must accept credit for a difficult task brought to fruition. He has had good political backing — and it is evident that the political goodwill finally extended to all stakeholders.

By the time this issue of *Network* appears, the Corporation's interim Board should be in place, and the recruitment of a top management team will be crucial to a successful start in business for NRC.

Not all States chose to become equity partners from the beginning. For those which will take equity there are complex legal formalities to be completed.

Consultants to the Task Force have pointed out that, for commercial success, the attainment of

internationally achievable lower cost standards is essential. Since modern rail practice requires fewer personnel, there will be an inevitable reduction in the workforce; rail staff have understandable concerns, and these will need to be addressed promptly.

Decisions on the capital expenditure necessary to improve performance, and for which finance has been promised by the shareholders, will require careful evaluation.

Application of correct marketing strategies could mean the withdrawal of rail from certain traffic which is currently handled. The face of our railways will change markedly.

Evaluation of these and other major problems inherent in the great changes which lie ahead points to a tremendous workload and challenge. Those with a concern for the future of Australia's transport can only wish the embryonic NRC all the success which it deserves. □

Michael Schrader

M.C.G. SCHRADER

NETWORK

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NRC sole freight marketer



Commencing early in 1992 Australia's new National Rail Corporation (NRC) will become the sole marketer of interstate freight which means that no longer will customers have to deal with up to five separate rail authorities to send freight across the continent.

The signing of a formal agreement to establish the NRC at a special conference of State Premiers and Commonwealth Government leaders on 30 July this year will have far-reaching effects.

For the first time Australia will have a single commercially operating company responsible for interstate rail freight from Brisbane to Perth. It is expected to break-even within three years and become totally self-supporting after five years.

At that time, the Corporation will be fully capitalised and the special arrangements in the Shareholders' Agreement catering for the transition to profitability will cease.

The government leaders have emphasised that the NRC is to be a commercially run company and say that only on this basis will it become a fair and competitive alternative carrier to road transport.

The NRC will re-invigorate interstate rail freight and ensure a future for its workforce. Government

leaders are confident that rail unions will welcome the Corporation as a commitment by all governments to a continuing role for rail freight without the stigma of massive losses.

South Australia supports the establishment of the Corporation and proposes to sign the Agreement after a range of issues under its Railways Transfer Agreements with the Commonwealth are resolved through bilateral negotiations.

The Commonwealth, New South Wales, Victoria and Western Australia will provide the initial equity funds for the Corporation, estimated to be in excess of \$400 million over the next five years.

While Queensland and South Australia did not wish at this stage to become an equity participant in the organisation, both governments fully supported its establishment. The Queensland Government has contributed assets to the Corporation. Both committed themselves to providing the Corporation with every assistance to enable it to have control over the interstate rail freight network.

The Shareholders' Agreement signed on 30 July 1991 provides for these States to become equity participants at a later stage.

The initial \$400 million equity investment in the National Rail

Corporation in conjunction with the commercial borrowing program is expected to lead to the elimination of the existing and continuing interstate rail freight deficits of around \$375 million a year.

To ensure rail's competitiveness, revised work practices must accompany new investment so that its full benefits can be realised and large efficiency gains made. The Special Premiers' Conference noted that studies had already identified that average productivity gains of at least 35 per cent could be obtained.

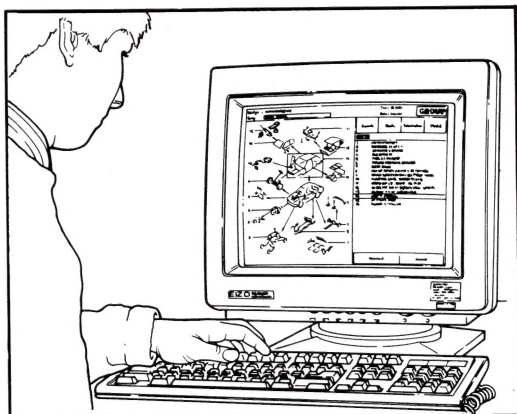
It will be the responsibility of the Corporation management and the unions to negotiate improved working arrangements so that the NRC can market itself as an efficient and reliable freight carrier. Its establishment and its success are dependent on satisfactory agreement being reached on workplace reform.

As a commercial organisation, NRC will only take on the workforce it needs.

The conference noted that there may be further redundancies in the existing rail systems as a result of the establishment of the Corporation and financial, investment and implementation strategies, and negotiation of an enterprise award with the unions. □



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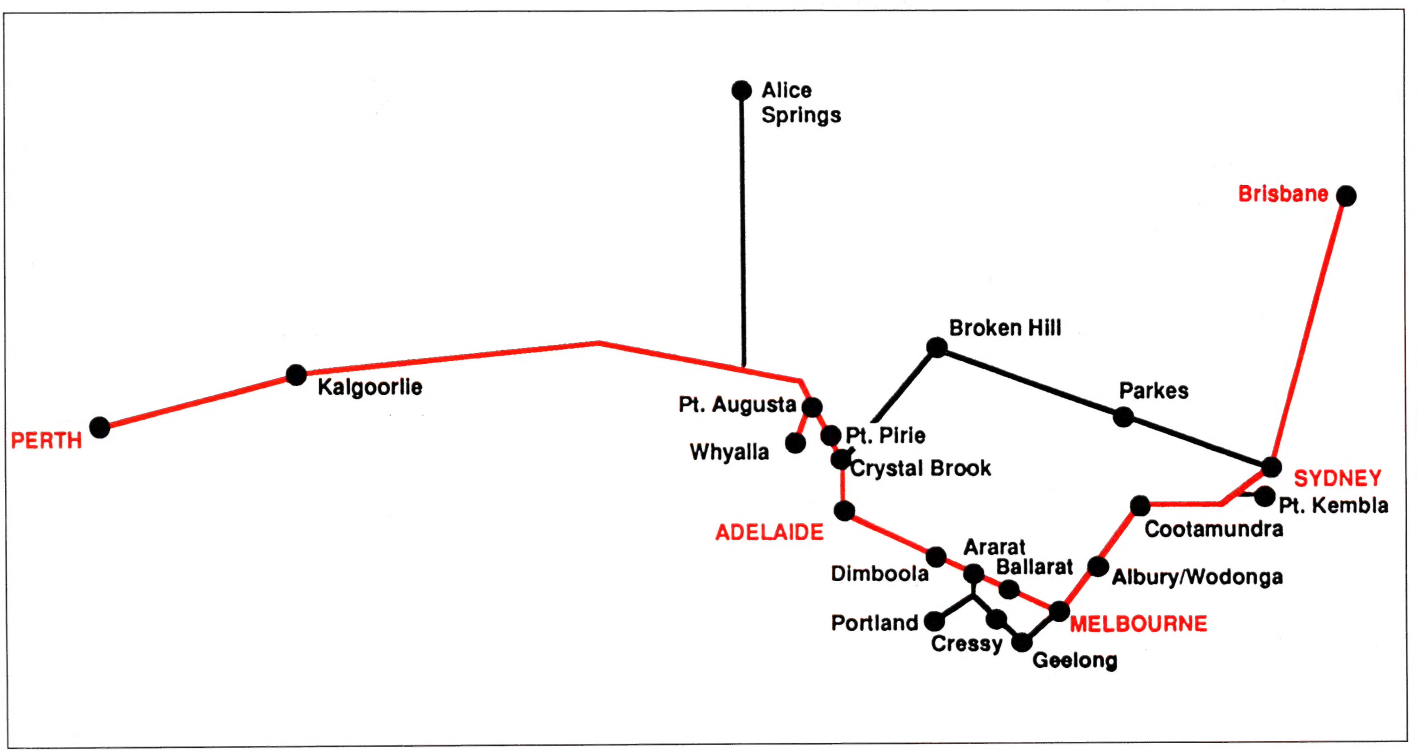
An option NRC must consider in \$1.5 b outlay

The newly-created National Rail Corporation (NRC), for the first time in the history of Australia, will ensure that investment decisions are taken on a commercial basis with the needs of a national network of paramount importance. It will be investing about \$1.5 billion in rail infrastructure during the next ten years.

NRC will assemble an asset base in the next three years comprising terminals, track, signalling systems and rolling stock sufficient to ensure its commercial viability. And where outright ownership is not a commercial proposition, leasing or other arrangements will be entered into.

One option for the future development of rail in Australia which the NRC has to discuss is outlined in some detail in the Eastern Rail Network Study prepared by Booz-Allen & Hamilton Pty Ltd, an American specialist consultancy company with an office in Sydney.

Booz-Allen & Hamilton Pty Ltd were engaged by the National Rail Freight Initiative Task Force to address, from a national perspective, investment issues on the Sydney-Melbourne-Adelaide-Perth route. Their study used present traffic patterns as a base. ▶



TRACKS

Freight trains from Sydney to Adelaide and Perth climb over the steep slopes of the Blue Mountains and descend to Parkes from which point the gradients are much more favourable. The Adelaide-Perth routes share common rail to Crystal Brook where the lines diverge.

An alternative route is on offer from Sydney south to Cootamundra, thence via Forbes to Parkes. Gradients are less severe, there are fewer constricting tunnels, but the journey is longer. It has been used, quite frequently, during extensive trackwork on the Blue Mountains line.

Traffic from Melbourne moves on broad gauge (160cm) to Adelaide where Perth-bound freight is bogie-exchanged for onward movement west. Two routes are available between Melbourne and Ararat. One is the main line through Ballarat, with one long adverse grade and numerous curves. The other is a flatter route through North Geelong and Cressy. The Cressy line was developed originally as a relief line for steam-hauled wheat trains making their way to Geelong.

Near Adelaide there are restrictive gradients, tunnels and curves through the picturesque Adelaide Hills – they are not picturesque for railway operators. Plans have been drawn up for a railway by-pass of this area leaving the present route near Tailm Bend and heading north around the edge of the ranges rejoining the present railway north of Adelaide where a triangular junction could allow direct entry to Adelaide and to the Perth line.

This north-of-Adelaide diversion is contingent upon conversion of the Melbourne-Adelaide railway to standard (143.5cm) gauge – another issue addressed in the Booz-Allen report.

Their study is in favour of:

- ☐ Rerouting the Sydney-Adelaide-Perth-Broken Hill line through Melbourne. By 1995 freight density would increase in this way by 57 per cent along the Sydney-Melbourne corridor and by 73 per cent along the Melbourne-Adelaide line with resultant cost savings.



- ☐ Single track operation. It is estimated that if the Goulburn-Junee lines were reduced to single track the NRC's mainline track kilometres in the Sydney-Melbourne-Adelaide network would be diminished by more than 25 per cent. This, of course, means huge savings in maintenance and replacement costs.
- ☐ Longer cross-over loops. At strategic locations these allow trains to pass at prescribed intervals and facilitate the use of longer trains.

Melbourne-Adelaide a key feature

A key feature of this proposal is the standardisation of the Melbourne-Adelaide track, and, say Booz-Allen the route via Ballarat is the clear choice. Continued use of the line through Cressy (an alternative to Ballarat) even in the short term is not considered justifiable if NRC is to be accountable for any significant maintenance costs.

To secure the southern freight triangle would involve outlays of \$154 million to make Melbourne-Adelaide standard gauge, \$66 million for a separate freight route through the Sydney metropolitan area, and \$185 million for an Adelaide Hills bypass.

The study report paints an interesting pen-picture of the present Sydney-Melbourne line with particular reference to impediments north of Wagga Wagga. From

Melbourne to Wagga Wagga curve or structure speed restrictions are minimal, limited primarily to the Wodonga-Albury segment, and all train control duties are centralised (except Dynon access and Wodonga-Albury) in Melbourne and in Junee New South Wales.

However, north of Wagga Wagga there are numerous severe gradients and curvature speed restrictions, the train control system is labour intensive with about 20 attended signal boxes between Junee and Campbelltown (outer Sydney area). Double track north of Junee has limited facilities for overtaking.

In addition, block telegraph sections and limited intermediate signals determine that there must be extended spacing between following trains over several route segments. Track and signal configurations in the larger terminals such as Junee and Cootamundra restrict through-train operating speeds.

The current standard 900 metre crossing loop length limits container trains to about 2,200 to 2,500 gross tonnes. This is half the target which NRC hopes to achieve by 1995.

The major issue for the Sydney-Melbourne corridor will be how to address the above limitations within levels of capital outlay which can be justified by the projected traffic levels along the corridor. While this is a high-density corridor by Australian standards the current interstate volume is less than 2.5 million net tonnes per annum – equal to the

AMONG THE OPTIONS –

■ RE-ROUTING PERTH FREIGHT THROUGH MELBOURNE INSTEAD OF BROKEN HILL TO IMPROVE EFFICIENCY

■ SINGLE TRACK SYDNEY-MELBOURNE OPERATION WITH LONGER CROSS-OVER LOOPS

■ STANDARDISING THE GAUGE FROM MELBOURNE TO ADELAIDE

WITHIN FOUR YEARS FREIGHT DENSITY WOULD INCREASE BY 57 PER CENT ALONG THE SYDNEY-MELBOURNE CORRIDOR AND BY 73 PER CENT ON THE MELBOURNE-ADELAIDE LINE.

PICTURE SHOWS A FREIGHT TRAIN PASSING CONOBLE BETWEEN PARKES AND BROKEN HILL, NEW SOUTH WALES.

hauling capacity of only four trains a day in each direction despite the current infrastructure limitations.

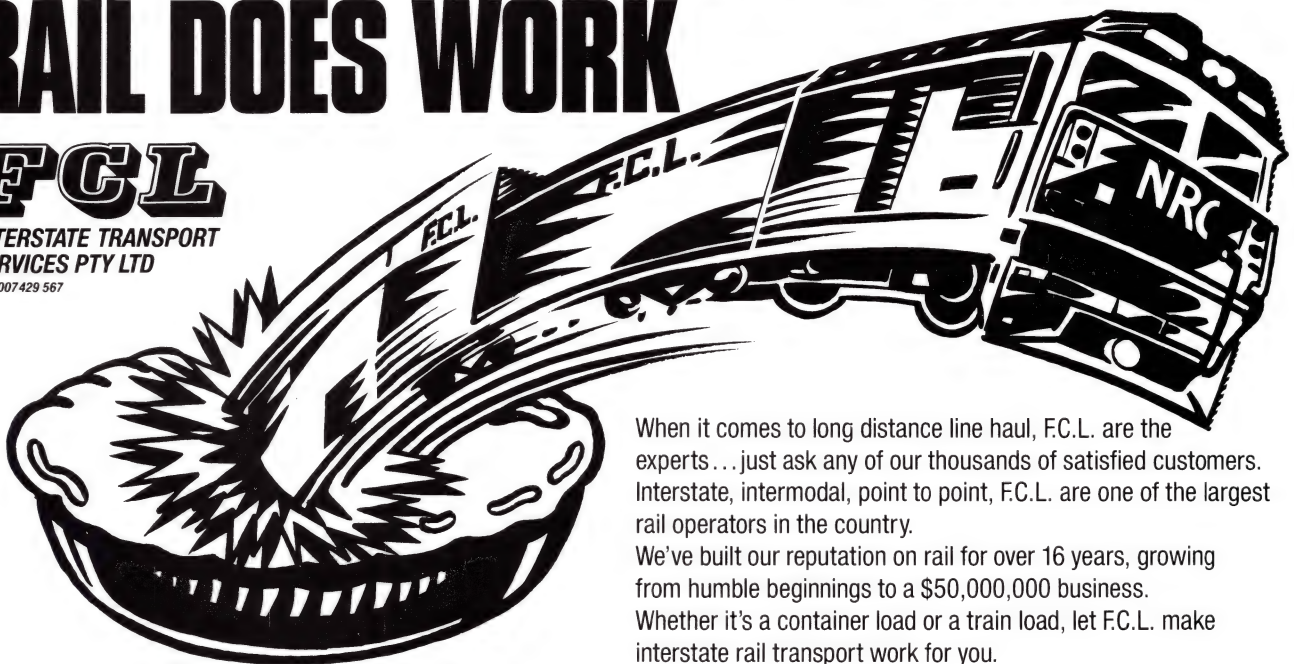
The projected growth, even with major investment on the route will not materially improve traffic density

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TRACKS



A SYDNEY-MELBOURNE FREIGHTER AT WANDONG (LEFT); WEST-BOUND FREIGHT LEAVING PORT AUGUSTA, SA, FOR THE LONG HAUL ACROSS THE DESERT (LOWER), AND TRAVERSING A NEW BRIDGE ACROSS A DRY RIVER BED, TYPICAL OF MUCH OF THE AUSTRALIAN TERRAIN (RIGHT) A SYDNEY-PERTH FREIGHTER GATHERS PACE.



as the NRC's 1995 traffic volume is projected at 3.3 million net tonnes and will remain within the hauling capacity of four trains a day but of a larger size.

Single track option favoured

Booz-Allen & Hamilton suggest reducing secondary track and unwarranted facilities on single track segments of the Sydney-Melbourne run, reducing double track to single track where the traffic levels warrant, and increasing density of traffic by either sharing facilities with State rail systems or by increases in NRC traffic. The idea here is to spread investment costs over a larger traffic base.

Between Melbourne and Junee, the report says, passing loops are more numerous than can be justified by current train volumes. In the Melbourne-Albury sector, for example, there are only 16 scheduled train crossings a day for a total of 15 loops. On the Junee-Goulburn double track movements typically range between 12 and 13 trains a day in each direction.

Total freight train movements may actually decrease in the future. The NRC is projecting significant increases in maximum train sizes. The State Rail Authority in New South Wales is continuing to consolidate services to improve efficiency (60 wagon grain trains, for example, could reduce grain train movements by nearly a third).

The Booz-Allen & Hamilton report notes that North American single track routes often handle in excess of 25 trains a day producing 50 million gross tonnes or more (more than eight times the NRC's projected 1995 freight volume), and with much larger trains than envisaged by the NRC. Elsewhere in the report reference is made to the comparatively lower standard track in Australia. North American sleepers have twice the bending strength of Australian wood sleepers due to their greater size, and there are from 20 to 50 per cent more sleepers in American track.

Despite a 30 per cent lower axle loading than in North America there are many more broken wood sleepers in Australia resulting in as much as 50 per cent shorter sleeper life and drainage and surfacing costs are much higher. North American

practice is to anchor up to 240 per cent more sleepers than in Australia.

North of Goulburn train services range between 22 and 30 a day which is almost double the volume to the south of that city. Thus in contrast to an anticipated reduction in train frequency to the south, the frequency on the Goulburn-Campbelltown

Overcoming

sector is likely to increase due to local traffic within New South Wales. NRC traffic will represent probably less than 20 per cent of total train movements on this sector. The report notes that NRC and State Rail in NSW may need to resolve a system of equitable joint funding of improvements, or the processes for funding and implementing sole-benefit projects.

Locomotive hauling capabilities between Melbourne and Sydney can be divided into two basic step functions:

- 1050 trailing tonnes which is the current maximum through-load in both directions



□ 1650 trailing tonnes which is the maximum load for all sections except Wagga Wagga to Junee northbound and Goulburn to Wagga Wagga southbound. A 1650 tonne throughload could reduce NRC's projected fleet requirements by up to 10 locomotives, but grade reductions between Junee and Wagga Wagga could cost \$55 million and there are 20 locations north of Junee where the southbound gradient is more than 1-in-66 (some of them short enough to operate as momentum grades). These are some of the most severe grades in the entire NRC network.

Broken Hill line impediments

The Broken Hill line is the shortest

1800 metres.

A Sydney-Cootamundra-Parkes route has been considered as an avenue to avoid the physical constraints of the Sydney-Parkes line, but the route's extended distance negates its potential benefits, according to Booz-Allen & Hamilton. Their report prefers a Lithgow routing over the Cootamundra proposal if the Broken Hill line is designated a long-term part of the NRC network.

As mentioned earlier the consultants recommend the Broken Hill line should not be part of NRC and that it be required only until the Melbourne-Adelaide standard gauge is completed. They say there should be no investment on the Broken Hill route and maintenance expenditure should take into account the short-term need for the line.

is investigating alternative options for the Adelaide Hills which will yield train size capabilities similar to those achievable via Ballarat on V/Line and height clearances similar to those possible with retention of the existing Dynon freight depot in Melbourne. Moving the freight depot had been considered because of bridge height limitations in its suburban environs.

Booz-Allen's preliminary analysis of the Adelaide bypass suggests that possible savings may not be as high as originally forecast. The distance for Adelaide-bound traffic would increase and the potential benefits from "double-stack" operation of container trains are not as high as short-haul corridors such as Melbourne-Adelaide.

Residual situation in Victoria

The report highlights also the residual problem which would remain in Victoria if the Adelaide line were to be standardised and suggests cost-effective options for handling them. It cautions, that even under the most favourable circumstances, the standardisation project would be "marginal".

Booz-Allen's proposals for the project envisage:

- Utilising current Melbourne-Sydney standard gauge line to Sunshine.
- Conversion to standard gauge of the single track Melbourne-Adelaide main line from Sunshine to Belair, South Australia.
- Conversion to standard gauge of one of the two main line tracks from Belair to Keswick. ▶

the physical limitations

route between Sydney and Perth, but Perth traffic represents less than half the projected interstate tonnage on this line. Sydney-Perth is some 400 kilometres shorter than the alternative Sydney-Melbourne-Adelaide route. There are, however, major physical operating impediments on the Broken Hill route particularly east of Parkes.

From Sydney to Parkes there are 11 height-restricting tunnels, gradients of 1-in-33 westbound, slow speed restrictions through major centres such as Lithgow, Orange and Bathurst, and short passing loops (400-500 metres). From Parkes to Broken Hill loops are 900 metres and three of them are being extended to

Elimination of the Broken Hill line from NRC's network could reduce the NRC infrastructure cost by \$265 million, say the consultants, mainly in capital costs and maintenance savings.

The second major issue (aside from standard gauge conversion) for the Melbourne-Adelaide route is the Adelaide Hills bypass. A new 140 kilometre route bypassing the hills has been proposed to overcome the impediments of grades at 1-in-50, sharp curves limiting speed, and tunnel height clearances.

The bypass could cost around \$130 million. Australian National already

Ted Butcher night before

Mr Ted Butcher, and (far right) apprentices working model of the RoadRailer which attracted keen interest from road operators.

On the day following the Special Premiers' Conference which signed the National Rail Corporation agreement, a relaxed and smiling Ted Butcher was in Melbourne to speak at the first National Freight Congress organised by road transport operators at the World Trade Centre.

As chairman of the National Rail Freight Initiative Task Force which has brought a difficult concept to fruition through the mesh of Commonwealth and State processes, he held the admiration of road operators.

He is after all one of their favourites having been chairman of the National Freight Forwarders Association in 1980 before becoming President of the Australian Transport Federation (1982-84).

He knows the truckies well and they know him.

With his grey wavy hair, craggy features and casual manner he could almost be mistaken for everyone's idea of the happy independent "I'm

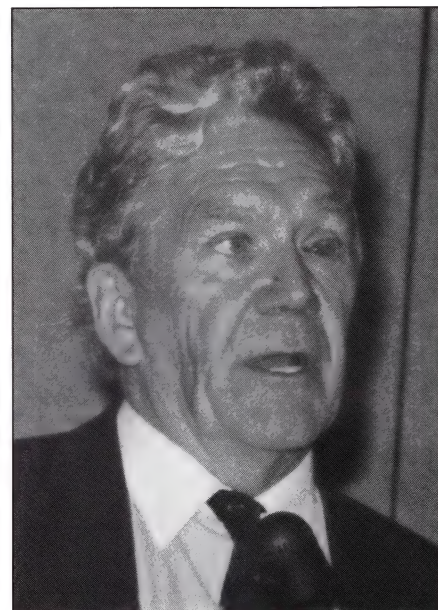
in business for myself" truck driver. His language was clear and to the point and in terms the truckies know well in the earthy manner of their calling, but without the profanities.

He did not know if he would even be a member of the NRC board, he said, or where his future might be in the new rail freight plan for Australia. How could he just the day after the NRC agreement was signed? He did not know if he would even have a job.

"But we are now talking about something which is a reality and which will go ahead," he told a very attentive audience. "The idea was started about two years ago by a group of us who thought that nothing very significant had happened in the railway industry for 30 to 40 years.

"Also, we were only too aware of the losses made by rail and we felt that the interstate rail services should be the lesser losers. When we did our sums we found the losses were around \$400 million a year and some vast improvements could be made quite quickly.

"We knew we could turn the loss



around over a period of three years for relatively low investment. The combined rail freight organisations have been spending about \$100 million a year on efficiency improvements."

The Task Force has done a lot of

► FROM PREVIOUS PAGE

- ☐ Using Australian National's current standard gauge line from Keswick to Islington.

To reduce costs of associated necessary changes in Victoria the report canvasses options, among them:

- ☐ Ballarat passenger services would be re-routed via North Geelong and Meredith (some go this way already).
- ☐ Rail services to Ballan would be terminated (approximately 50 passengers per day).
- ☐ Bus-rail options for the Sunshine-Melton line, which would maintain rail services for two-thirds of the passengers on this route. (Retention of a full rail service to Bacchus Marsh is estimated to cost about \$23 million; approximately \$15,000 per passenger at present levels.)

Retention of rail services to Dimboola would be costly; regauging of the "Overland" service to Adelaide would be avoided if the "Indian-Pacific" were re-routed from Adelaide through Melbourne to Sydney.

In summary Booz-Allen recommends that the Ballarat route should be the NRC's sole Melbourne-Adelaide route.

Conversion of associated lines to standard gauge such as the AN Taillem Bend-Peebinga grain line and the V/Line Murtoa-Hopetoun, Dimboola-Yaaapeet and Portland grain terminal access is mentioned as a possibility. Conversion costs of these three grain lines and the Ararat-Portland-Mount Gambier-Snuggery route could be about \$25 million. Locomotive and wagon bogie conversions to support these services would involve an additional \$3 million.

The report confirms that traffic

from the Mount Gambier-Snuggery region generally is unprofitable for both AN and V/Line. Routing grain west to Adelaide rather than east and south to Portland, in conjunction with the elimination of service to Mount Gambier, the report says, would save the expense of converting the Portland-Ararat line.

It is emphasised that the Booz-Allen & Hamilton Pty Ltd study addresses only one major group of investment decisions which the new National Rail Corporation board of management will need to make. The alternatives it canvasses and the recommendations it makes, however, do seem to fit neatly into the private-operator philosophy of the NRC and provide a pathway for the future development of a commercially-motivated rail freight system in Australia that is national in concept and nation-wide in efficient service. ☐

— the day after the

preparatory work in anticipation of government agreement to the NRC including a close study of work practices at all terminals. Initially it worked on the basis of best international practices, but dropped that plan after a while and adopted its own best practices and bench marks.

Ted Butcher told his road transport operator audience that a study of the southern triangle Sydney-Melbourne-Adelaide, when viewed from the viewpoint of the network as a whole, found that the annual rate of return in standardising the Melbourne-Adelaide line becomes very attractive.

"The NRC could be in a situation where it says it wants to operate only via Parkes until the Melbourne-Adelaide standardisation is completed," he said. "We did not want to make a decision, however, which more rightly belongs to the NRC management team.

"The management team has a lot of work to do in a short time. The first implementation stage will be 1 February 1992; we will start marketing and managing the terminals on that date. We felt the important thing is to establish our interface with the customers and to



get greater reliability into the system.

"Rail service people are disappointed that we are not going for a greater share of business, but we have to face reality. There have been a lot of gross exaggerations about what the NRC will do.

"If we are successful road transport in Australia will increase by about 50 per cent by the turn of the century. If we are not successful road freight will double."

Ted Butcher was a member and later President of the Inter-State Commission between 1984-90 and prior to that headed United Transport Holdings Australia Pty Ltd (1979-84) first as chief executive, and then as

deputy chairman. He was executive director of United Transport Overseas Co Pty Ltd (1973-79).

He has served on a number of Federal Government committees which reviewed the economic regulation of the domestic aviation industry, inquired into the distribution of Federal Road Grants, and reviewed international airfreight policy in relation to primary products.

He was a board member of the Civil Aviation Authority in 1990 and served as chairman of the Australian Road Transport Advisory Committee (May 1990 to April 1991).

He turns 62 years of age in October this year. □.

A V/line freighter speeds freight along the Melbourne-Ballarat line. This is the favoured route to Adelaide for westbound superfreighters of the future.



TRACKS

Looking ahead to double figures again

Rail's intermodal business managers recently held a two-day strategy meeting to discuss initiatives designed to return to double-digit container growth following a decline to 8% annual growth rate in 1990/91 caused by the economic recession.

Prior to 1990/91 the annual growth rate had been in double digit figures for six consecutive years.

Domestic container freight has increased progressively and now represents 50% of the total interstate rail freight task.

Announcing rail's interstate performance for 1990/91, National Freight Co-ordinator, Malcolm Cameron, said of the intermodal business managers: "They are used to double digit growth rates. Road competition has suffered a 15-20 per cent reduction in 1990/91. The intermodal managers want to regroup to ensure a return to double digit annual growth rates."

The growth of private container freight moved by Australian rail has been as follows:

1984/85	+10%
1985/86	+14%
1986/87	+23%
1987/88	+17%
1988/89	+22%
1989/90	+20%
1990/91	+ 8%

Other rail business managers have had a harder year. Import/export shipping containers, where rail has 95% market share on the Melbourne/Adelaide and Sydney/Brisbane "landbridges," follow the economy. Consequently import/export shipping container movements by rail are down 20%.

Steel movements, where rail holds 59% market share against sea 14%

Oil treated rail timbers going strong for Westrail

The treatment of hardwood sleepers was first investigated early this century with karri sleepers being treated by the "Powellizing" process. This involved a hot diffusion treatment using a solution of molasses and arsenious oxide in water.

By the 1920s a similar treatment known as "Fluarizing" was employed using an aqueous solution of sodium fluoride, arsenious oxide and sodium dinitrophenate.

This proved more successful in preventing decay and termite attack. The test sleepers achieved average lives of around ten to eighteen years in track in Western Australia. However, the weakness in the treatment lay in the shallow penetration which resulted in the sleepers being exposed to fungi and/or termite attack due to end-splitting and surface checking.

In 1950, the former CSIRO Division of Forest Products (now Division of Chemical & Wood

Technology) in Victoria began experimenting using oil borne preservatives being pressure impregnated into sawn eucalypt heartwood using pressures of 7000kPa and 1400kPa. It was considered that this form of treatment would offer long-term protection against mechanical and biological breakdown.

Following these early trials, the first preservative treatment using oil-borne preservatives and high pressure was carried out on jarrah-karri and marri sleepers in co-operation with Westrail and the then Forests Department (now the Department of Conservation and Land Management) in Western Australia.

By 1970 the performance of these sleepers was considered satisfactory and Hicksons Timber Impregnation Co. (now Koppers Timber Preservation Pty Limited) in conjunction with Westrail commenced treatment of all sleepers

used by that network in Western Australia.

Westrail have continued with the treatment of rail timbers since 1970 with nearly four million sleepers treated by Koppers to date. The teamwork of Bunnings Sleeper Processing Company and Koppers has proved its value in supplying quality treated rail timbers over the last twenty years. Koppers have been pleased to closely monitor the performance of the oil treated rail timbers ensuring safe working practices and optimal product specification.

Koppers continue to oil-treat rail timbers for Westrail and have recently won a contract to treat 200,000 hardwood timber sleepers in the current financial year. These sleepers will be used for maintenance and track upgrading.

Enquiries: Koppers Timber Preservation Pty Ltd, Philips Building, 10th Floor, 15 Blue Street, North Sydney 2060. Telephone (02) 954 5411. Fax (02) 954 5462.



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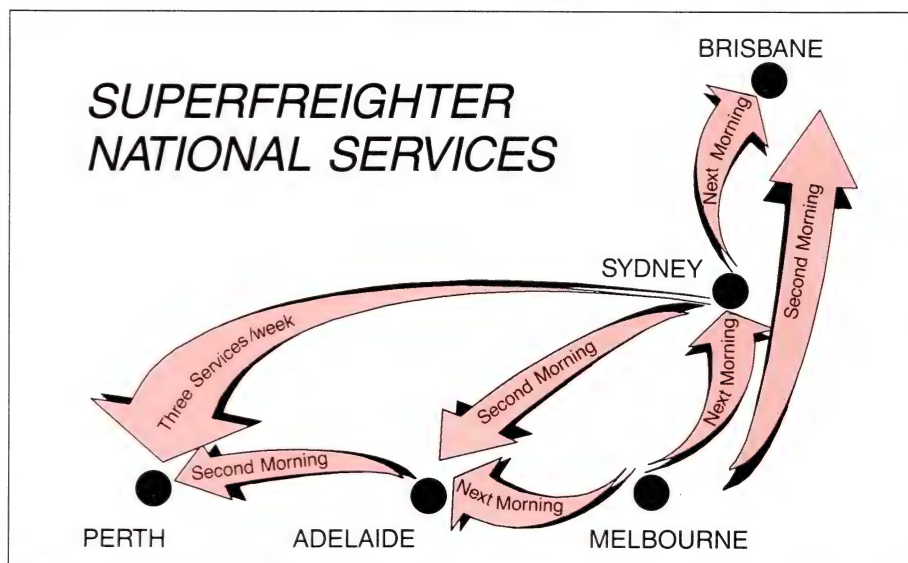
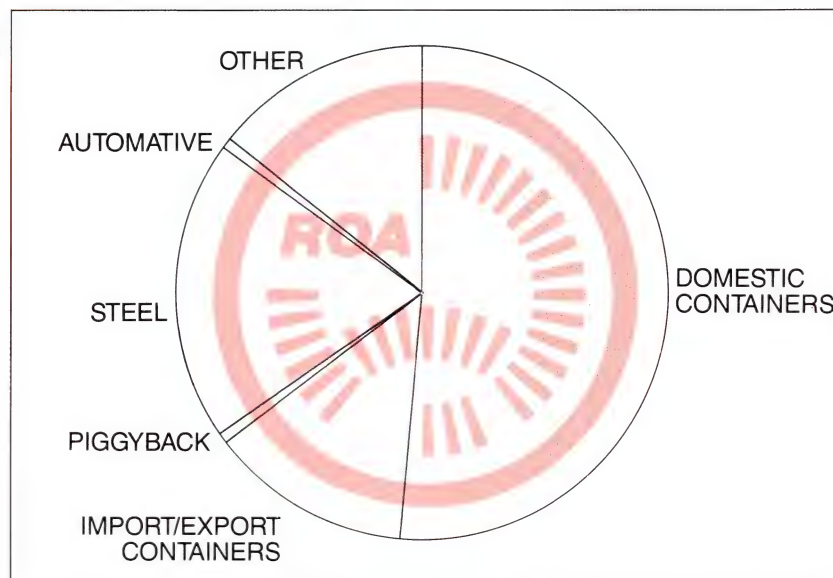
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TRACKS

THE ECONOMIC DOWNTURN IN AUSTRALIA HAS AFFECTED FREIGHT TONNAGE, BUT NOW INTERMODAL RAIL FREIGHT MANAGERS HAVE MET AND PLANNED A STRATEGY TO MAINTAIN AND IMPROVE OVERALL PERFORMANCE. THESE GRAPHIC ILLUSTRATIONS SHOW THE COMPOSITION OF RAIL FREIGHT AND THE DELIVERY TIME BETWEEN MAJOR CITIES.



and road 26%, also follow the economy. Consequently rail freight tonnes are down – by 17% in fact. Similarly automotive movements around Australia are also down.

“The net result was an overall 8% reduction from 9.11 million tonnes in 1988/90 to 8.44 million tonnes in 1990/91 – a reasonable result,” says Malcolm Cameron.

Initiatives which form the basis of the intermodal business managers plan to return to double-figure growth rates include:

- Three Superfreighter services per week from Sydney to Perth have commenced this year. For example, Thursday afternoon despatches arrive in Perth on Sunday, for deconsolidation (if necessary) and quick customer delivery.
- Melbourne-Brisbane Superfreighter capacity has been

increased from 78 to 90 container slots per day. Additional services from one to two per day on peak days are planned.

- The second daily Superfreighter Melbourne-Adelaide has been expanded from 54 to 75 container slots per day.
- A Brisbane-Cairns Superfreighter is planned by Queensland Rail to exploit the Melbourne-Brisbane Superfreighter connection.
- Rail rates will now be more competitive for cubic freight. This provides the market base for planned double stacking of containers when the National Freight Corporation capital expenditure allows.
- Wagonload gross mass on all WA Superfreighters will increase from 53 to 57 tonnes per wagon by improved techniques of matching containers to wagons.
- Rates will now encourage small freight consignments in containers

currently returning on unbalanced routes e.g. return from Perth and Brisbane.

“Rail’s performance since 1984/85 has been based on productivity,” explains Malcolm Cameron. “Our operators have turned existing wagons and locomotives around more frequently on existing track and alignments using fixed consists and optimum train paths. Coupled with this we have accurately analysed and understood the needs of the freight market. Hence our results.

“Each increment of capital expenditure will remove an operating constraint to be exploited in the freight market. Initially reliability will be targeted; then chipping a series of 15 minute intervals off transit times; then double stacking; higher speed equipment. Our business managers can see it all and they are in there, recession or not.” □

TRACKS

Sydney-Melbourne at 160 km/h



The rolling stock for the fastest trains yet between Sydney and Melbourne is now being built and is expected to be placed in service by mid 1993 slashing the passenger train trip to about 10 hours with further reductions possible.

Four XPT power cars under construction will link with eight sleeping cars to a completely new design and five deluxe sitting cars yet to be built in Australia by ABB Transportation.

The rolling stock has been ordered by the State Rail Authority of New South Wales.

An initial reduction of approximately three hours in the service time is planned, with further reductions possible if improvements in the route conditions occur which would enable the XPT trains to run at their maximum speed of 160km/h for longer periods.

One major advantage of employing the XPT trains on this service is the higher utilisation of rolling stock. At present there is one day and one night service in each direction. With the present trains completing the service in approximately 13 hours, the present sleeper cars on the Sydney/Melbourne route remain at a terminus during the day. Similarly the present day service cars remain overnight at a terminus.

With the XPT train completing the journey in about 10 hours and each train set having a combination of sleeper cars, sitting cars, and a buffet

car, the same train is able to be used for both day and night service.

The new sleeper cars will accommodate 18 people in nine separate compartments. During the day the sleeper cars will be able to accommodate 27 people. There will be five shower and toilet units in the sleeping cars; one shared between two compartments except the end compartment which has its own unit. At one end of the sleeper car the crew will have accommodation consisting of seats and a toilet.

The design of the sleeper and deluxe sitting cars will use the latest materials in order to provide a high level of comfort and safety to passengers and crew with particular emphasis on materials which afford a high level of fire retardancy in order to meet the new rigorous Railways of Australia specifications. The sleeper cars will have a fire detection system designed to provide early warning to the crew of any fire emergency. The fire detection system is also coupled to the airconditioning system so that dampers are operated in the airconditioning ducts if a fire is detected thus preventing smoke from spreading from one compartment to another.

ABB Transportation will assemble a mock-up of one compartment and the crew's facilities by December 1991.

The new deluxe sitting cars will have 64 seats which will recline to a similar angle as airline seats. The seats will also rotate so the passengers can face the direction of travel.

Reading lights and a public address system will be provided which is also similar to normal airline facilities.

The original design of the XPT was derived from a British concept. However, unlike the British design, the XPT trailer cars are constructed from stainless steel which has major advantages in the Australian climate by providing a high degree of durability with low-level maintenance.

The new bogies for both the sleeping and deluxe sitting cars will be of an ABB design. The ABB bogie is designed specifically for Australian track conditions and will provide excellent ride characteristics for passenger comfort up to the maximum operating speed of 160km/h. A trial set of bogies to the new design has successfully completed proving trials on an existing XPT trailer car.

The SRA is also refurbishing the balance of the XPT fleet to incorporate improvements. These improvements include the provision of nappy changing facilities, upgrading of the buffet facilities and improved seating in the sitting cars. The livery of the XPT cars is now being changed to the CountryLink colours of blue, turquoise and white from the original orange and white colours. The interior colour scheme is also being changed.

The first deluxe sitting cars are due for service in September 1992 with the last of the sleeper cars being delivered during July 1993. The new Sydney/Melbourne XPT service is expected to commence in 1993. □

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TRACKS



This monument celebrates the centenary of the construction of the rail line to Kuranda.

Centenary

One of Australia's best known government-operated passenger railways is the line which links Cairns in North Queensland with Kuranda, on the Cairns Range and at the entrance to the scenic Atherton Tableland. The popularity of the Kuranda Scenic Railway, as it is known, continues to increase.

As many as three trains a day now make the journey, each with upwards of fifteen carriages, conveying tourists on the spectacular route. This year forty-six thousand passengers made the journey in June, an increase of 48 per cent over the previous year – and in July the total was expected to reach sixty thousand.

The journey is a "must" on the itinerary of visitors to Cairns, which is enjoying a tourist boom following deregulation of the Australian airline industry, and dramatic falls in air fares. From overseas, also, "jumbo" loads of tourists land at Cairns International Airport – and the journey over the Kuranda Scenic Railway is often first on their list of nearby attractions.

June 1991 was a very special month for this railway, which celebrated one hundred years of service to the people of the Cairns district. Queensland Railways, with the help of the Queensland division of the Australian Railways Historical Society, made sure that the centenary of a very famous railway was celebrated properly.

Highlight of the day was the return to steam locomotive operation to the Cairns Range. The use of steam locomotives on this line ceased as a regular practice in the early 1960s, although some specials were operated in the years after that. To power the centenary special train, Queensland Railways brought two steam locomotives north from Brisbane. PB15 class No. 732 was built by Walkers Limited of

Maryborough Queensland and entered service in 1926. Over two hundred engines of this type were built, and they achieved a reputation for reliability, especially on the light lines of Queensland Railways. No. 732 is one of three steam locomotives currently maintained by QR for working special trains. No. 732 was hauled up from Brisbane as part of a freight train.

Pride of place to an old friend

Pride of place, however, was given to A10 class No. 6, now the oldest working steam locomotive in the Southern Hemisphere. No. 6 was built by Nielsen and Company in Scotland, and entered service in Queensland in 1866. After years of duty on QR, it was sold to private owners, and used to haul sugar cane in the Bundaberg area. It returned to Brisbane, starring in the Queensland Railways Centenary celebrations in 1965, and then was placed on display in the Redbank Railway Museum.

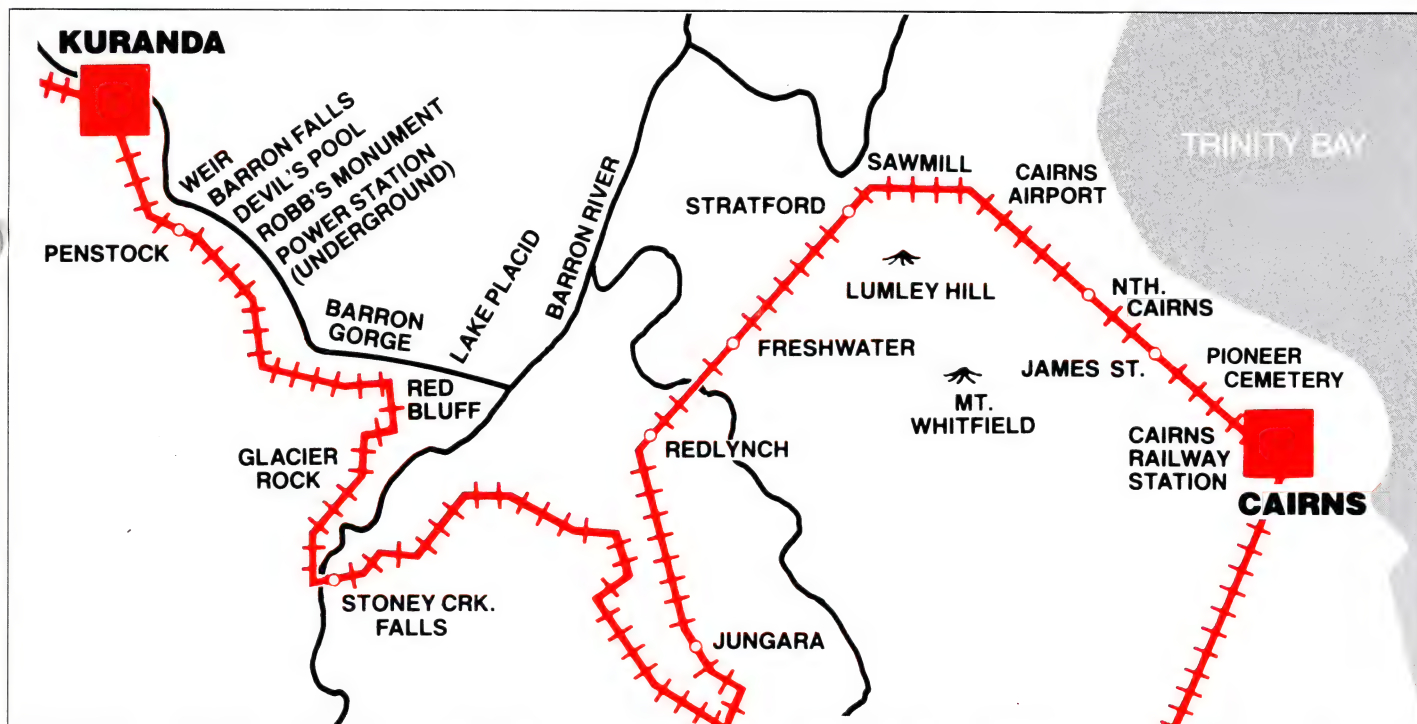
As a result of a dedicated lengthy period of hard work by members of the Queensland Division, Australian Railway Historical Society, the locomotive was taken out from the museum and fully restored. The Ipswich City Council, Boilerland, and Dulux Australia as well as the Queensland Railways, contributed to the magnificent reconstruction of a truly pioneering locomotive.

No. 6 was brought north from Brisbane, travelling in a special low-level wagon as part of the same freight train which brought 732 to Cairns.

Saturday June 15 1991 – one hundred years to the day since the railway was opened for goods traffic – dawned fine and clear in Cairns. It was the sort of winter weather on the back of which Cairns tourist trade has understandably boomed. At QR's Portsmith carriage and locomotive depot, last-minute finishing touches were put to the two locomotives, and they were attached to the front of the five carriages which would make up the Centenary Special. The locomotive crews had undergone special refresher courses to remind them of the days when to drive a steam locomotive was just part of a day's work. That day, and for the next one hundred days, it was to be something special.

At Cairns railway station itself, guests representing local industries, the travel trade, historical societies and community groups were waiting to join the train. Morning tea was served on the tropical platform, hosted by the Chief Executive of Queensland Railways, Mr Vince

for a proud celebrity



O'Rourke. Joint host was Mr John Zantiotis, Group Manager Passengers – and their chief guest was the Queensland Transport Minister, Hon. David Hamill.

More than a duo of engine whistles accompanied the train's departure from the station, and public interest was evident all along the trackside at the lower levels. Stops were made at Freshwater, and at Redlynch to take water. Then began the climb up the Range, so familiar to the hundreds of thousands of Australians who make it each year, albeit in diesel-hauled excursion trains.

There were, it must be admitted, one or two unscheduled halts while the A10 raised a little more steam – but none of the guests seemed to mind. Once an adjustment had been made, the A10's performance became faultless.

Through 15 tunnels and on TV

The journey through 15 tunnels on the line was accompanied without a glitch – often conditions in these tunnels were uncomfortable during the period of regular steam haulage. Passengers

stretched their legs at Stoney Creek station, while the locomotives took water again.

One of the best known vantage points on the line, the Stoney Creek Falls, lies just beyond the station, and the spectacular curved bridge has been photographed many times. The Centenary Train was the focus of attention from a television helicopter as it made its historic passage across the iron-work of the bridge.

Up around the escarpment, looking down over some of the housing development which is now encroaching dangerously close to the Barron Gorge itself, rounding the stone pillar known as Robb's Monument (Robb was the name of a contractor who built the railway), and so into Barron Falls platform. Here, as happens with every tourist train, the special halted – so that guests could glimpse the Barron Falls pouring over the cliffs nearby.

The Minister and the Chief Executive rode on the footplate of the A10 for the final section into Kuranda.

A warm welcome had been arranged. A large group of locals and visitors watched re-enactment

TRACKS



The historic and carefully-restored steam locomotives A10 No. 6 and PB15 class No. 732 crossing the famous Stony Creek Bridge.

► ceremonies on the platform; a group of aboriginal children staged traditional dancing, champagne was served, and Mr Hamill unveiled a cairn of workers' tools in commemoration of the event. The party then adjourned to nearby Frogs Restaurant for a commemorative "pioneer" banquet.

Guests returned to Cairns on one of the regular tourist trains. Most of the tourist carriages these days were formerly used on the Sunshine Express service between Brisbane and Cairns. The Sunshine Express was the forerunner of the airconditioned Sunlander trains which now serve this route. The carriages have been extensively modified to allow uninterrupted views through the windows as the trains cover the Range railway.

At Kuranda for 100 days

The two locomotives, however, remained behind at Kuranda. For one hundred days after 15 June, they were due to operate special excursions along the Barron River from Kuranda to Myola, which was the actual terminus of the railway when it first opened.

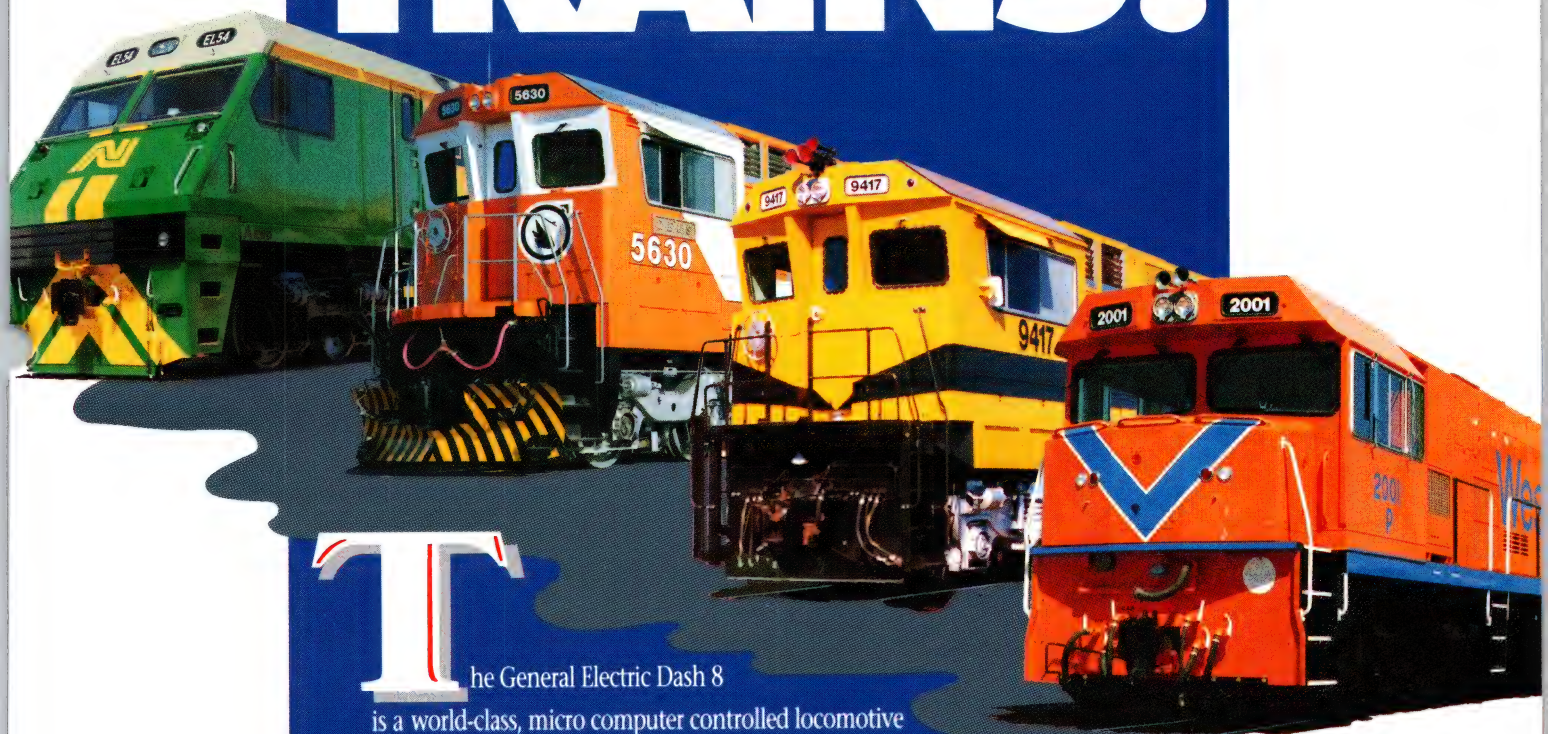
That section formed part of a plan to link the Queensland coast by rail with the mines near Herberton. The present route through the Barron Gorge was chosen in preference to other possibilities from Port Douglas or Innisfail to the Herberton fields.

Construction of the Kuranda Railway commenced on 10 May, 1886 when the Premier of Queensland Sir Samuel Griffiths, used a silver spade to turn the first sod. It is recorded that celebrations involving almost the entire population of Cairns lasted all day and long into the night.

Construction of the railway as far as Mareeba was carried out under three separate contracts. Section 2, which included the ascent of the Cairns Range, was the most arduous – and details of its construction are available to all passengers on the Kuranda Scenic Railway, in a special pamphlet which has been produced for visitors. Additionally, all trains on the line now feature a commentary on points of interest as the train makes its way up the Range.

Certainly, the Centenary celebrations for the Kuranda Scenic Railway will be long remembered in North Queensland. □.

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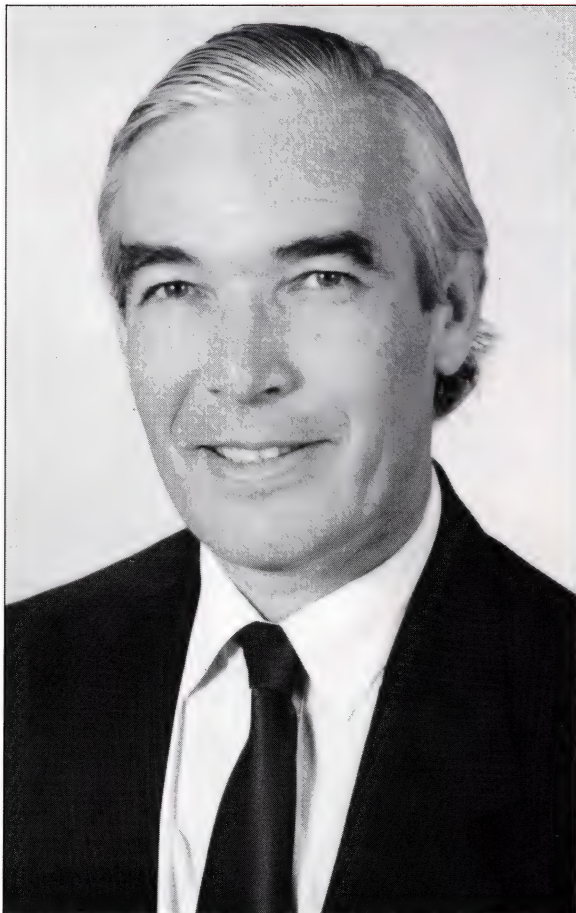
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DEVELOPMENT OF COMPUTERISED ENERGY CONSERVATION AND TIMEKEEPING SYSTEMS FOR RAILWAYS HAS BROUGHT AN AWARD FOR OUTSTANDING ACHIEVEMENT IN ENERGY RESEARCH TO PROFESSOR IAN MILROY, (ABOVE) PROFESSOR OF CONTROL SYSTEMS ENGINEERING AT THE UNIVERSITY OF SOUTH AUSTRALIA. WITH PROVEN IN-SERVICE RESULTS IN AUSTRALIA AND CANADA SHOWING ENERGY SAVINGS OF 14 TO 25 PER CENT, AND MORE PUNCTUAL TRAIN SERVICES, THE SYSTEMS CURRENTLY ARE UNDER EVALUATION BY RAILWAYS IN EUROPE, NORTH AMERICA AND ASIA. THE TWO CONTROL SYSTEMS DEVELOPED BY THE UNIVERSITY TEAM ARE THE METROMISER FOR URBAN AND SUBURBAN RAILWAY OPERATIONS AND THE LONG HAUL FUEL CONSERVATION SYSTEM (LHFCS) FOR SINGLE LINE TRACKS.

Significant savings in energy, reduced wheel and brake wear, and better time-keeping will be gained from a sophisticated new Australian computer system being developed for long distance trains. The system has strong export potential and already is attracting international interest.

The Long Haul Fuel Conservation System (LHFCS), is suitable for mixed passenger and freight operations on long distance, single track railways. It has been developed from the successful Metromiser technology now used on Adelaide suburban trains.

The scheduling and control group at the University of South Australia worked in conjunction with the State Transport Authority and International Railroad Systems in developing the Metromiser system for use on metropolitan railways. The work was initiated by Professor Ian Milroy, Professor of Control Systems Engineering. Apart from its use on the 2000 class diesel hydraulic railcars by the STA, Metromiser is attracting considerable interest worldwide through several successful demonstrations under a variety of operating conditions.

From 1986 to March 1991 the group worked with Australian National on the more complex problem of energy-optimal or at least energy-efficient control of long haul freight trains. Since 1989 the work continued with Teknis Systems Australia and latterly International Railroad Systems (Electronics), with support from the National Energy Research Development and Demonstration Council (now ERDC).

The LHFCS has two sub-systems (Dynamic Rescheduling and an on-board Advice Unit) which have been extensively exercised in desk test using data logged in actual Australian National operations between Adelaide and Port Augusta. AN will trial commercial versions of the equipment on coal trains on the Leigh Creek line in tests scheduled for late 1991.

The Advice Unit tells the locomotive driver whether to power, coast or brake according to timetable, track and other constraints in such a way that energy is conserved without causing unnecessary delay.

"The essential strategy in urban operations is to reach authorised speed as fast as possible, and then to coast for as long as possible prior to

long-haul system save money

braking towards just-in-time arrival at a target. This strategy also pays off in long haul operations provided that train handling considerations so allow," Professor Milroy explained.

"However, the long haul project was more demanding than Metromiser. Much longer journey sections between targets are involved, and the characteristics of the trains may only be known from experience or assumption and can change as the journey proceeds. In addition, fixed timetables are inappropriate for getting traffic efficiently through single line rail corridors with occasional passing loops," he said.

Optimised schedules consider all trains

The Dynamic Rescheduling System (DRS), which would be located at the train control base, considers all trains on or due to enter a single line corridor with occasional passing loops during a future time window (typically the next 24 hours). At the start of the journey the total locomotive power, mass and length of the train need to be known approximately. For each train DRS has a dollar cost of lateness at key scheduled points and has a set of functions relating the cost of fuel (or electrical energy) to journey time over each section. The schedule is optimised to minimise the total dollar cost while satisfying operational constraints.

Estimates of fuel savings available, based on logged data from AN operations, are typically 6-10 per cent for the DRS alone and 10-15 per cent for the on-board Advice Unit alone.

The two systems are yet to be trialled in tandem but, from extensive simulation, the conservative estimates of fuel savings exceed 18 per cent. These predictions are terrain sensitive, and have been made for the (generally lightly graded) route north from Adelaide to Port Augusta.

In one theoretical example, for a BL class loco hauling 2000 tonnes on a 120km section of track north of Adelaide towards Port Augusta, four minutes of timetabled "slack" catch-up time, which might typically be used waiting for an opposing train at a crossing siding, can be

turned into a 22 per cent fuel saving by optimal driving.

"The main benefit of DRS relates not to fuel conservation but to the fact that its optimisation algorithms are based on the actual dollar costs of lateness at key scheduled points," Professor Milroy said.

"By experimenting with these costs on a what-if basis, it is expected that train controllers and their managers will come to appreciate the real financial costs of various operational decisions. The fuel cost is, however, a significant component of such costs, and very significant fuel savings can be made without causing trains to be late at the few places where lateness really matters."



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When the work described by Professor Milroy is brought into revenue service, drivers, operations and maintenance staff, and traffic planners will be able to appreciate the real dollar costs of operational decisions. Summaries of these costs will be fed back onto management information systems and used to make better informed investment decisions.

Lower maintenance for brakes and wheels

By-products of energy-aware driving and scheduling also are becoming appreciated as experience continues with Metromiser, and there is little doubt that these will flow over to the Long Haul Fuel Conservation System (LHFCS). For example, with an optimised timetable and Metromiser, energy dissipated in the brakes is reduced by nearly 30 per cent, resulting in lower wheel and brake maintenance costs.

The advantages of LHFCS do not end there. During its development other potential applications of the technology have been identified.

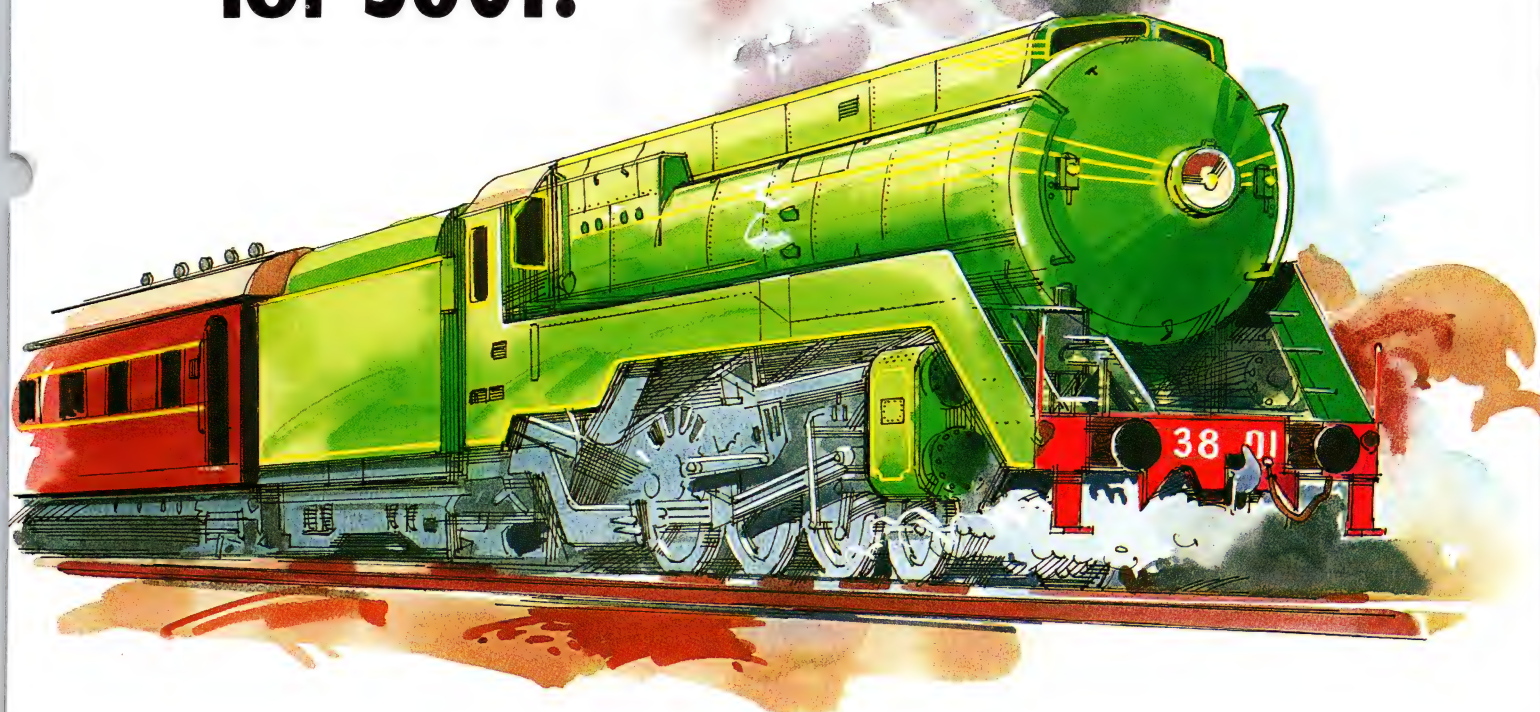
"The simulator embedded in the on-board Advice Unit can also be used by civil engineers to assess the fuel/time trade-offs associated with various candidate track upgrade projects," Professor Milroy explained.

"If fuel rates are known, the energy efficiency of the diesel-electric traction system of a locomotive can be estimated as a by-product of this system. This could be a useful parameter to be fed back to train control as part of a train condition monitoring scheme so that maintenance can be planned and undertaken when the locomotive's efficiency starts to fall off.

"However, now that the main projects have been transferred to the supply industry, these juicy university morsels are sitting on the shelf waiting for a client to ask what it will cost to develop them for the marketplace," he said.

A consultancy service for this type of work is available to the railway industry through the University of South Australia and Techsearch Incorporated, 183 Melbourne Street, North Adelaide, South Australia 5006. Telephone (08) 267 5466. Fax (08) 267 4031. □

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SPEED TESTS



Wayne Clift (standing) and Phil Wright regularly hurtle along six kilometres of test track near Port Pirie, SA, in this Australian National research car at speeds exceeding 120 km/h. Their studies are leading to faster freight.

High-speed test runs are being made in a research car along a six-kilometre section of track south of Port Pirie as Australian National finds out precisely what is needed to allow freight trains a 120 km/h speed limit.

The research car contains testing and ride analysis equipment, with one end modified for the observation of wagons during trials. The car's coupler has measuring equipment to record the forces exerted on it during haulage and one of the bogies is fitted with apparatus to measure rail corrugations.

The research car is also used for a variety of other projects, including the commissioning of locomotives, measuring rail corrugations for AN's rail grinding operations, hot box unit detector development, and measuring forces on container loading and vehicle ride dynamics.

But, senior research and development officer Wayne Clift, technical officer Phil Wright and staff spend a lot of time on test trains hurtling along the track between Crystal Brook and Coonamia.

They are researching and developing freight vehicle ride quality at high speed. At speed wagons are prone to bogie "hunting" and rock and roll, causing wear and tear on themselves and track.

As the ride characteristics of different wagons vary, the researchers are testing different types of resilient sidebearers and stabilisers to control hunting and body roll. The whole process is geared towards providing a better service for AN's customers. It means better ride quality for customers' goods and better transit times.

There are also long-term benefits for AN. Wheel life is doubled and bogie component wear and maintenance are significantly reduced.

Constant contact resilient sidebearers (CCSBs – manufactured by American companies Miner and Stucki) are being fitted to bogies to improve stability at speed. Bogies without CCSBs and with worn wheels can run safely up to 80 km/h. Improved bogies fitted with CCSBs can run at up to 120 km/h.

Before fitting CCSBs, Australian National had to modify the installation of sidebearers to overcome the dimensional differences between American and AN designed wagons. AN's mechanical design section designed what is known as a "sidebearer pocket".

Manufactured at Islington workshops, these castings have been supplied to V/Line and Bradford Kendall Foundries of Sydney. The design has been supplied to both Miner and Stucki for possible applications overseas.

It costs about \$4000 to convert and fit each wagon with the constant contact resilient sidebearers.

In order to reduce this cost to some \$1900 per wagon, AN, in conjunction with the CCSB manufacturers, is designing a low profile side-bearer.

This sidebearer is designed to fit existing AN wagons, thus eliminating the need for sidebearer pockets to be fitted to the bogie.

About 800 AN wagons have been fitted with CCSBs and plans for another 500 are underway.

The test track for high-speed research has to be maintained at a constant standard to ensure consistent test results.

"We also work closely with the operations branch to set up the test train consist and provide the horsepower necessary, which is preferably between 6000 hp and 9000 hp," senior research officer Wayne Clift said.

This ensures a maximum amount of testing is completed in the limited track time available. Tests are carried out at up to 140 km/h. □

Strong export interest in Teknis level crossing system

Railway authorities in Thailand have shown strong interest in a railway level crossing warning system developed by Teknis Systems (Australia) Pty Ltd. The company estimates sales to Thailand could reach \$5 million and involve installations at more than 300 level crossings.

The warning system is a modified version of the Teknis internationally-recognised electronic flagman which was demonstrated in Bangkok to the State Railway of Thailand (SRT).

The flagman system alerts railway work gangs to the danger of an approaching train and already has enjoyed considerable sales success in Australia and overseas.

Teknis will install its new level crossing warning system in Thailand for SRT to evaluate as a prerequisite to detailed negotiations.

The company's managing director, Mr Julian Smith, said discussions with the Thai rail authorities had been encouraging and the company was confident of securing substantial export contracts for the system by the end of the year.

It was during the national and overseas launch of the electronic flagman earlier this year that road and rail authorities in Australia and Thailand were so impressed by the system's concepts that they asked Teknis to further develop the technology to improve the warning systems and therefore safety standards at railway level crossings.

The resultant Teknis Level Crossing Traffic Warning System provides fail-safe "train alert" warnings to vehicles approaching crossings and is up to four times less expensive than conventional booms or "wig wag" warning lights.

This makes it a cost efficient alternative for thousands of remote level crossing sites throughout Australia.



Level crossing technology is helping the Australian economy.

Julian Smith said the safety implications for level crossings in Australia were enormous. The innovation could save hundreds of lives by reducing the number of level crossing smashes.

"In Victoria alone, more than 300 people died and more than 700 were injured in 3,500 level crossing mishaps in that State between 1975 and 1988," he said.

"Applied nationally, this is a senseless loss of life. These types of fatalities occur at poorly-marked country railway level crossings where vehicles are travelling at speed and their drivers may not realise they are approaching a crossing.

"Research has shown that upgrading a crossing simply from warning signs to flashing lights improves its safety effectiveness by nearly 70 per cent.

"However, more than 5000 level crossings around Australia still have inadequate warning systems, so casualty numbers will continue to climb until safety provisions improve."

Mr Smith applauded Australian

road and rail authorities for their efforts to upgrade the worst of these sites but the sheer number of crossings and the cost – until now – of upgrading their warning systems limited the safety gains achievable.

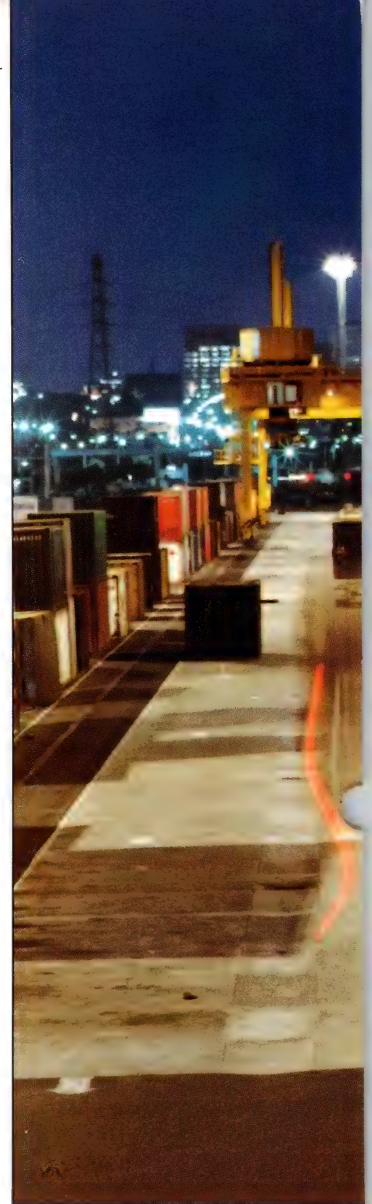
"While accidents at crossings can never be fully prevented the Teknis system provides a warning system at a cost which allows road and rail authorities to upgrade the safety standards of hundreds more railway level crossings throughout Australia," Mr Smith said.

Teknis's level crossing system uses radio-linked sensor technology whereby approaching trains activate warning sirens and overhead flashing lights at the level crossing.

Mr Smith said the system was currently being assessed by the New South Wales Department of Main Roads and VicRoads' Level Crossing Safety Committee and also featured at an Australian Road Research Board convention on railway level crossing safety recently in Adelaide.

Enquiries: Julian Smith, Teknis Systems (08) 232 1690.

How domestic freight has grown



Fast, modern freight trains line-up at night.

MORE THAN TWO MILLION V/LINE TONNES A YEAR

By MARINUS VAN ONSELEN

Business Manager Intermodal
Victorian Public Transport Corporation

From my perspective, having been on both sides of the fence as both a road and rail operator, rail has changed its act dramatically in the past few years, and to its credit, has adjusted better than expected to the era of just-in-time priority transit, door-to-door delivery, quality outturn and, above all, improved bottom line performance.

Growth in domestic containerised freight has largely displaced domestic freight in vans and substantial new domestic freight tonnage has been converted to rail. Shipping freight on rail from the industry that began the container revolution, has also grown, but of other non-intermodal traffic only steel has shown strong growth, primarily at the expense of coastal shipping.

Half of intersystem rail freight now consists of domestic freight in private containers (38%) and term hire (12%). This freight being primarily conveyed on point-to-point, Superfreighter type

services. Shipping containers (13%), Superpak (2%) and piggyback (1%) complete the Intermodal traffic, which is now over two-thirds of rail's current haulage task.

Steel at 20% dominates the remaining traffic and it is also beginning to be transited in dedicated block train services. Automotive (1%), paper in vans (2%), forwarders vans (3%) and "other" traffic (9%) complete the current picture. Superfreighters, dedicated point-to-point express container only trains have arrived linking all major Australian Capitals.

New Superfreighter services now criss-cross the country, increasingly providing integrated scheduled express services. Even from Melbourne to Perth where two different gauges operate, third morning delivery is available and is consistently achieved. The Superfreighter system, which dictates that rail must run trains to keep faith with the market, even if spasmodic volumes mean partially empty trains at times, is working. The market is responding, and volumes are increasing.

Every night these block container trains connect our major capitals. Market acceptance and growth of these services has been remarkable.



Container terminal South Dynon, Victoria, ready for inter-capital services.

V/Line Superfreighter growth

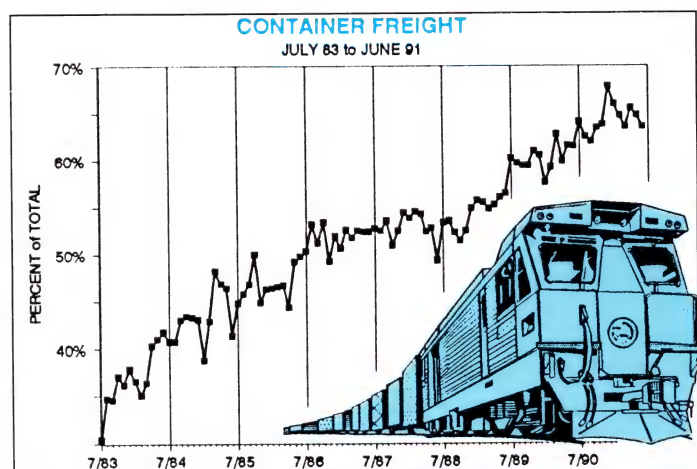
Using V/Line as an example we have grown from the original Superfreighter service in 1985 between Melbourne and Sydney, which provided 40 x 20' container spaces daily in each direction five days a week, for a total weekly corridor capacity of 400 units, to providing, today, a weekly corridor capacity of 3628 units on Superfreighter with an additional 1680 units on the term hire (Private Superfreighter) trains, for a weekly block train total of 5308 units into and out of Melbourne.

This is remarkable growth indeed.

Domestic Intermodal tonnage for V/Line has grown dramatically from 350,000 tonnes in 1983/84 to more than 1.1 million tonnes in 1988/89 and to just over 2 million tonnes for the financial year just completed.

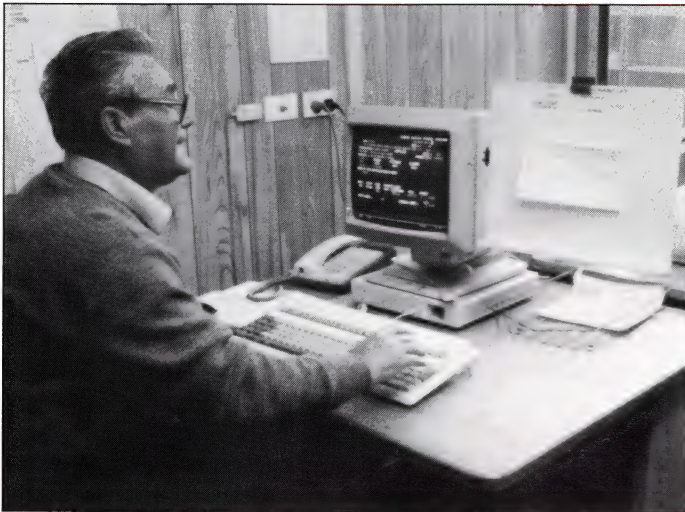
V/Line cost recovery

Most importantly, V/Line which operates in a geographically small State with limited linehaul distances, has managed to improve the bottom line of its Intermodal business substantially.



Recovery on short term avoidable costs has improved from only 73 cents in the dollar in 1984/85 to now contributing 10 cents for each revenue dollar towards the overheads of the system. This does not mean that the system is profitable. Tonnages and market share are still low, costs still too high and many efficiencies still need to be gained.

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Checking freight consignment details.



But if such results can be achieved in a difficult environment such as that facing the Victorian system, then the future for commercial viability on a national scale is potentially very good.

What then is required to "commercialise" rail services? The answer is extensive, but I will cover some of the major areas.

Work at major terminals

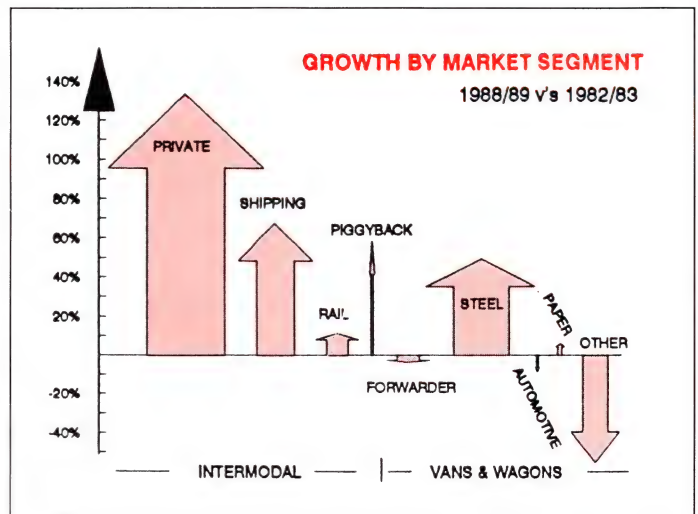
Insofar as infrastructure is concerned, given that more than two-thirds of rail tonnages are now containerised, the modal exchange points between road and rail, i.e. the terminals, are crucial and must be upgraded and made more efficient and quickly. Clearly fast disciplined train services are ineffective if client vehicles are delayed on pick-up and delivery, or freight is left behind because the terminal can't handle it.

The figures for V/Line are indicative of the rapid growth nationally and I am pleased to say much effort has already been undertaken in our major terminals with extensive work already in progress in providing additional, hardstand, track and lifting capacity at Kewdale, Islington and Acacia Ridge.

South Dynon terminal is currently undergoing a \$20 million development with detailed plans in hand, if necessary, to expand this terminal to handle over 650,000 containers annually.

In Sydney, Chullora while physically constrained has increased its lifting capacity and has substantially improved vehicle turn around time. A major terminal development is planned for Enfield with a design study having commenced.

The National Rail Freight Initiative Task Force recognised early the importance of terminals and a special terminals working party has prepared a number of papers covering terminal siting, plant requirements, capital requirements and a number



of other crucial matters in readiness for the new NRC management. Funding for some terminal development has already been granted by the Federal Government.

New services planned

The growth of the successful Superfreighter system will continue; the recently introduced direct Superfreighter service from Sydney to Perth has already been extended to three services weekly. Queensland Railways are investigating connecting the Brisbane Superfreighter service with narrow gauge Superfreighter services to the far north. It is often not realised that Cairns is as far from Brisbane as Melbourne.

Ex-Melbourne a second Superfreighter service to Port Botany is planned for introduction in the next year and a capacity increase on the Melbourne/Brisbane corridor to two trains per day on selected days of the week is also envisaged when demand exceeds current capacity.

Longer-term the concept of a steel conveyor belt and shuttle system whereby multiple interconnectable fast, fixed consist unit trains, i.e. Superfreighters, will provide multiple daily services around the clock, between the major capitals particularly on the east coast, is envisaged. Such a system will greatly enhance utilisation of high cost capital assets such as terminals and track and will lead to an overall reduction in unit costs.

It will also enhance service delivery.

Under a shuttle system, which it must be noted is heavily volume-dependent, clients will have several daily services to choose from with the premium time sensitive traffic being moved under guarantee at one price level and the less time-sensitive, for example shipping or commodity traffic, at a lower price level on the less attractive e.g. midnight departure late next day delivery shuttle service.

Under such a system considerable economies of scale can result. On the Adelaide/Melbourne corridor, for example, a single daily Superfreighter service each way requires two sets of wagons, locomotives and crews. Two services each way



A Superfreighter speeds across the countryside.

daily requires four sets of wagons, locomotives and crews. Three services daily however would require only five sets of wagons, locomotives and crews, as sets would be able to cascade over and more freight can be moved with less equipment.

Furthermore between major population centres such as Melbourne and Sydney, Roadrailer is feasible and we shall also witness the extension of double stack services beyond the Adelaide/Perth corridor. Higher axle loadings and improved rolling stock design are also envisaged.

Meeting customer service levels

Rail recognises that clients today demand quality both in terms of meeting promised delivery times and low levels of damage to goods.

Superfreighter and the unitising of freight has partially addressed these concerns. The reduction of shunting and marshalling has improved freight outturn considerably and delays to train delivery times are now measured in hours not days, and rail is now working on reducing those delays to minutes and seconds, and ultimately totally eliminating them.

The new I.T. systems being developed and implemented will not only speed freight handling and processing but are now developing into real time monitoring of freight in transit systems. E.D.I. or paperless trading will also further enhance client control and inventory management and will ultimately result in direct client access to vital transit information, booking, space allocation and billing.

Railways of Australia is a foundation member of Tradegate and E.D.I. trials are in progress.

In meeting customer service requirements the National Rail Corporation, which for the first time in intersystem rail freight operations will have single entity management, will be able to establish uniform priorities, philosophy and direction and should substantially enhance not only bottom-line results but more importantly deliver the improved service quality demanded by clients in today's competitive market place.

I believe the private freight forwarders must continue to play a pivotal part in providing rail services, but a closer "partnership" role must be forged between the NRC and the rail freight forwarder.

Having been both a road and rail freight forwarder as well as a rail system executive



Planning current and future freight train movements, Transport House, Melbourne.

during the past 22 years, I think it fair to say that considerable improvement in communication and trust has already been established between the forwarding industry and the railways with regular meetings and information exchange taking place.

There is, however, still some way to go, particularly as a forwarder's profitability depends to a large extent on the difference between the client selling price and the rail linehaul buying price, and rail's profitability depends to some extent on the linehaul price it gains from forwarders. This is a conundrum indeed, which can only be sorted out by plain talking and respect by each partner for the other.

Some rail executives in the past have held views that the way to rail profitability is to vertically integrate rail services and adopt the role of both linehaulier as well as forwarder. There are both successful and unsuccessful examples of such endeavours overseas. However, it is my view that given the considerable challenges facing rail executives under the NRC's short time frame commercial charter, concentration on such endeavours without first getting linehaul services



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A Superfreighter, its multi-coloured containers streaming behind it, makes a colourful picture as it heads interstate.

to the required service standards and at lowest possible operating costs, would be premature.

Freight forwarders for their part must also accept rail systems as true partners and commit to long-term, not variable, rail usage. It is interesting that only two years ago the economy was overheating and there were substantial freight volumes to be moved sometimes at any price, some forwarders while strong in their demands for additional rail capacity continued to strongly resist pricing adjustment and continued to advocate maintenance of arguably outdated and to some extent restrictive pricing practices.

Statements that any price adjustments anywhere are not tenable, is just unrealistic in today's rapidly changing market, as the railway executive who thinks he can automatically get an extra price increase every six months.

I think it needs to be understood by all that long-term viability is dependent on embracing the necessary changes to not only railway operating practices, but also to recognising that substantial of scale, well beyond the levels of individual or a small number of exclusive rail forwarding organisations, must be achieved, if overall rail costs are to be reduced substantially. In other words forwarders exclusively engaged in road haulage must also be converted to rail usage where rail is appropriate for them.

The high cost of infrastructure demands high levels of utilisation and intensive utilisation will greatly assist in providing the environment necessary for long-term rail viability and reduced end-user pricing overall. Nevertheless, there are areas where rail could involve itself in value added i.e. vertically integrated services, which would benefit not only rail but also forwarders and end users.

One possible area of value added activity is the provision of full and empty container storage and handling facilities at rail terminals. At this point rail philosophy has limited the use of terminals as modal exchange points or places to only load and unload trains and trucks, thereby

making it necessary for the forwarding industry to duplicate handling and storage facilities away from rail terminals. Modern lifting equipment and quality hardstand are extremely costly, and unnecessary trips between the rail terminal and the forwarders depot with freight not immediately destined for delivery, represents costly double-handling.

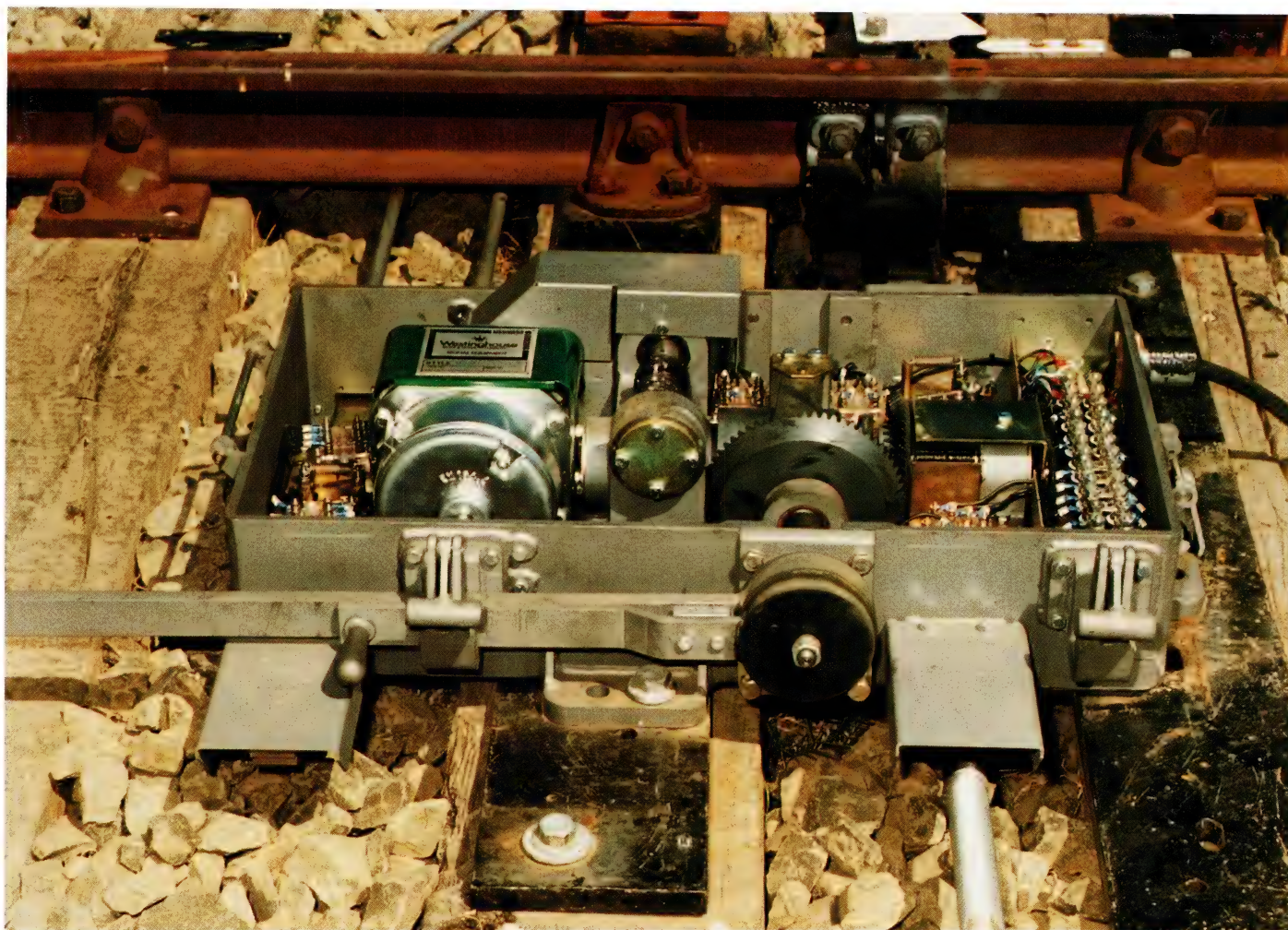
Containers can provide an ideal short-term storage medium and rail terminals, if appropriately configured through an economy of scale can cost additional storage and handling facilities competitively. This is particularly true as far as the shipping industry is concerned. Such an endeavour would represent a new rail business opportunity with substantial advantage to the rail operator, freight forwarder, shipping company and end-user alike.

Similar provisions could be made for better equipment utilisation, where if marketed and administered properly, could reduce unnecessary empty running. Very clearly the railway, as the common but independent bond between competing freight forwarders and shipping companies, with the assistance of the micro-chip and sound management, play a vital future role in this area.

For example, the re-positioning of empty shipping containers which occurs spasmodically can do with greater discipline to the benefit of all. Furthermore strong unified promotion of rail by the NRC and forwarders can do much to overturn many of the preconceived and historical concerns that end-users have when confronted with the rail option.

Clearly joint targeting and promotion of rail end-users, can assist in getting new business on rail and improve the level of trust between rail and its partners in the forwarding industry. Such endeavours should have substantial benefits for all parties. □

(This article is based on an address by Mr Van Onselen to the National Freight Congress in Melbourne. His address was entitled *Commercialising Rail*)



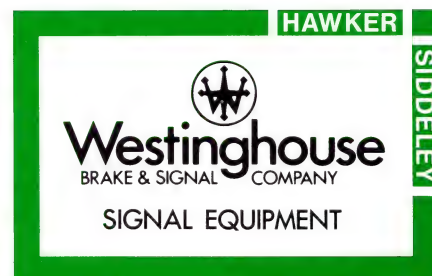
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A train operating at about 130 km/h and taking about 15 minutes from Spencer Street station in Melbourne to the city's main airport at Tullamarine is planned with a likelihood of it becoming operational by 1997.

Sydney already has such a service from its central business district to the airport at the planning stage.

Melbourne's Rapid Transit Link (RTL) will be financed by three main revenue sources:

- ☐ Rapid passenger transit services
- ☐ Rapid freight transit
- ☐ Commercial development at termini.



City to airport

The Public Transport Corporation in Victoria is facilitating the project with the assistance of the Federal Airports Corporation. The RTL will provide a world-class transport system from Melbourne Airport into the Melbourne central district.

The project is expected to attract worldwide interest and the successful submission will have to demonstrate a substantial Australian content.

The route and most appropriate technology are not to be specified in the project brief. However, both issues are central to the RTL and will be considered carefully during the evaluation of development submissions. Technology suppliers, prospective consortia and potential corporate clients have already expressed interest and support for the project.

The successful consortia will be selected by a multi-stage process consisting of:

- ☐ Registration of interest
- ☐ Shortlisting of consortia
- ☐ Evaluation of stage one submissions
- ☐ Selection of finalist consortia (2 or 3 consortia)
- ☐ Evaluation of stage two submissions
- ☐ Selection of preferred consortia.

A wide range of technologies is feasible. However, the selection of a route and technology will involve consideration of issues such as capital and recurrent costs, environmental factors, operating speed, frequency of service (number of operating units), safety, and integration with current public transportation facilities.

Users of Melbourne Airport were surveyed recently by a market research firm to determine their response to a RTL system.

Results indicate that 51 per cent of people surveyed would definitely or most probably use an RTL system. The major issues identified by the market research as being in the public's mind are: frequency of operation; cost per trip; security; staffed system strongly preferred to an unstaffed automated system; in-cabin baggage space; people would travel to a city terminal and board a RTL in lieu of travelling direct to airport.

Revenue sources

The RTL provides opportunity for revenue to be generated from passenger and non-passenger operations.

The revenue from airport passengers would be the major source of income.

A significant revenue source is expected to be the carriage of high-value air freight. All freight forwarders and carriers contacted to date expressed an interest in the use of the RTL for freight carriage, according to the Victorian Government. The route could be located to service the freight forwarding facilities located in the West Melbourne precinct.

The Federal Airports Corporation (FAC) has developed a strategy for Melbourne Airport to be Australia's premier freight airport. To achieve this goal, the FAC has developed the "Freight City" concept whereby a section of the airport is dedicated to providing world-class freight handling facilities.

The development process is being managed by the commercial development services group – asset management department, Public Transport Corporation on behalf of a Project Control Group comprising representatives of relevant national and State government authorities.

The RTL city terminus is proposed to be part of the Spencer Street multi modal interchange. It will provide a



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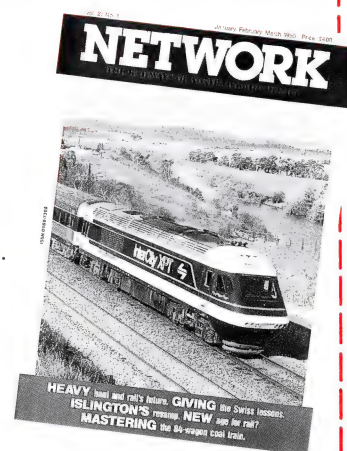
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50TH CONGRESS OF THE INTERNATIONAL UNION OF PUBLIC TRANSPORT



The Unions International des Transports Publics (UITP) will hold its 50th congress and international exhibition of public transport in Sydney from 2 to 7 May 1993. It will be the first time this prestigious event has been held in Australia.

The event will be sponsored by the State Transit Authority of New South Wales which won the bid to hold the congress and exhibition against strong international competition.

The State Rail Authority is the Australian railway host for the event.

UITP is a world association of public transport organisations from all European and North American countries and is associated with the

World Railway Union.

In its 120-page bid document which accompanied promotional video tapes, brochures and photographs, the State Transit Authority included a 30-page report on Australian transport and transport infrastructure up to the year 2000. The report indicated that capital expenditure on these items would reach \$13 billion during the next decade in Australia.

STA has briefed 50 of the leading Australian manufacturers and suppliers of transit equipment and says it has received their overwhelming support for the 1993 event. More than 2,000 delegates and accompanying people from most countries are expected to attend.

STA has also received enthusiastic support from the NSW State government, Tourism Commission, the Sydney Convention and Exhibition Centre, and the Sydney Convention and Visitors Bureau, as well as more than \$300,000 in Australian industry sponsorship for convention special events.

The successful Sydney bid has the potential to generate up to \$20 million in tourist income from the exhibitors, delegates and accompanying partners plus up to \$5 million in manufacturing stands and displays. There will be pre and post business meetings with transport experts.

Convention delegates comprise government leaders, heads of transit and rail authorities, city planners,

transport consultants, engineers, designers and systems managers. The exhibition will comprise manufacturers and suppliers of transport-related capital equipment and services, ranging from rail carriages to computer-operated ticketing systems.

The exhibition will have a heavy industrial base and will be an ideal forum for new technology to be evaluated and for proven technology to achieve new sales. The base stand module is 9m² with some stands covering in excess of 1,000m².

The exhibition is run to a strict proven quality control formula by UITP, which encompasses design, layout and construction methods. The organisation of conference delegates and accompanying partners must also be treated with a high degree of professionalism.

New South Wales Transport Minister, Bruce Baird said: "The opportunity for access to new transport technology through international exhibitor displays and the ability to show off New South Wales and Australian innovation in transport is very exciting. Also, the need for imaginative solutions to transport needs for Sydney's Olympic bid can benefit from the World Public Transport Show.

For further information: Michael J. Donovan, General Manager, Corporate and Community Affairs, State Transit Authority of NSW, Level 31, 100 Miller Street, North Sydney, NSW 2060, Australia. Telephone (02) 956 4770, Fax (02) 956 4771.

FROM PREVIOUS PAGE

fast, efficient link between the docklands precinct and Melbourne Airport. Extensions into the heart of docklands, Port of Melbourne, freight termini and the proposed docklands casino will be considered later.

The consultation process which will commence soon has been designed to identify and reconcile, where possible, union, local council, business group and community based issues before the final project parameters are determined.

Funding and ownership

The RTL project will be a private sector investment project administered under the "Infrastructure Investment Guidelines for Victoria" launched by the State government.

While it is probable that a preferred route will be decided as an outcome of the consultation process, three routes that have been considered in preliminary assessments to date are:

- ☐ Tullamarine Freeway/Moonee Ponds Creek
- ☐ Sunshine, Sunshine-Broadmeadows rail links (standard gauge line reservations)
- ☐ Broadmeadows Railway Reserve (Metplan 1988 option).

Technologies considered to date include rubber-tyred vehicles on a dedicated trackway; steel rail/linear induction motor systems; magnetic levitation with linear induction drives; monorails; and conventional steel rail technology on either shared or dedicated tracks.

It is envisaged that the RTL could service the Freight City complex through a spur line. Spur lines are envisaged to service separate freight facilities at the Port of Melbourne and other locations in the West Melbourne freight precinct.

The Public Transport Corporation has made allowance within the multi modal interchange for commercial development opportunities associated with a RTL. The FAC has indicated a willingness to make similar allowances at the Melbourne Airport terminus of the RTL.

Depending upon the route selected, the RTL may include one or more intermediate stops. The commercial development rights associated with the intermediate stop would be awarded to the RTL consortium. ☐



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Twins of

THE OUTBACK RAILWAYS OF NORTHERN QUEENSLAND ARE AMONG THE MOST PICTURESQUE IN AUSTRALIA AND OWE THEIR ORIGINS TO MINERAL EXPLORATION.

THE CAIRNS-FORSAYTH LINE WAS BUILT IN 1907 TO SERVICE THE ETHERIDGE GOLDFIELDS. SIXTY-SEVEN YEARS LATER THE LINE FROM TOWNSVILLE TO GREENVALE WAS BUILT TO SERVICE A NICKEL MINE. THEY PROVIDE AN INTERESTING COMPARISON. EXTRAORDINARILY THE RAIL DISTANCE BETWEEN THE TWO TERMINI IS 860 KILOMETRES YET AS THE CROW FLIES GREENVALE IS ONLY 100 KILOMETRES FROM THE FORSAYTH LINE.

MICHAEL SCHRADER

VISITED THESE TWO OUTBACK RAILWAYS OF VERY DIFFERENT CHARACTER. THE CAIRNS-KURANDA SECTION OF THE FORSAYTH LINE HAS JUST CELEBRATED ITS CENTENARY. AT THE RAILWAY HOTEL, ALMADEN, HE FOUND A WOMAN WHO SELLS 4,000 PIES A YEAR IN A TOWNSHIP WITH A POPULATION OF JUST 50 PEOPLE.

The Gulf Savannah region of Queensland extends from the Northern Territory border in the west, to the Great Dividing Range in the east. It is a safari country of golden savannah grasslands abounding with wildlife. Queensland Railways operates one rail line into the heart of the Eastern Savannah, and a second almost to its edge, just east of the Great Divide. Each was built for a similar reason, but separated in time by sixty-seven years.

The older of the two, which links Cairns with Forsayth, was completed in 1907 to service the Etheridge goldfields, one of a number of North Queensland mining projects developed in the nineteenth century. The second links Townsville with Greenvale, site of a nickel mine which commenced operations in 1974. The rail distance between the two termini is 860 km – yet, as the crow flies, Greenvale is only 100 km from Einasleigh, on the Forsayth line.

The two railways clearly demonstrate the change in approach, philosophy of construction, and technology which have taken place in the seven decades which separate them.

The line to Forsayth – the Etheridge Railway as it was known – was lightly constructed to a minimum budget. Gradients are as steep as 1 in 40, there are sharp curves, and steep momentum grade inclines on river crossings. The light rails weigh only 42¼ lbs/yard (21 kg/m) and the ballasting is minimal.

By contrast, the line to Greenvale was purpose-built to handle large tonnages of wet nickel ore, taking maximum advantage of modern diesel-electric motive power, and the ability to construct huge bridges and tunnels economically. The heavily ballasted rails weigh 107 lbs/yard (53 kg/m), and the ruling grade against loaded trains is 1 in 100. Four diesel-electric locomotives in multiple can haul trains up to ninety two wagons in length, grossing over 5000 tonnes. In contrast again, the light locomotives permitted to work to Forsayth struggle up the grades on that line with a maximum of 400 tonnes.

The two railways share a common problem. The future of each has been called into question.

The nickel ore at Greenvale is close to running out, and the traffic on the Forsayth line is but a

the Queensland Outback



Crossing one of several rivers between Mount Surprise and Einasleigh is QR's train 7A90 with driver Ray Gane at the controls of locomotive 1762.

shadow of its former self. For these reasons, if for none other – and there are plenty of others – now is the time to visit a truly fascinating part of remote outback Australia, by rail.

"The Last Great Train Ride"

Queensland Railways' weekly freight train for Forsyth leaves Cairns every Wednesday at 7pm. Attached at the rear is a combined passenger car/brake van – one working compartment for the guard, and two separated compartments, each with toilet, for passengers. QR restricts the numbers travelling on any one train to ensure that there is room to spread around on the long journey and, if there is sufficient demand, a passenger carriage is added to the consist.

The first section of the railway, between Cairns and Kuranda, has just celebrated its centenary. The Forsyth train climbs the famous ascent of the Cairns range, via the Barron Gorge, in winter darkness. The lights of Cairns twinkle below – and for the very far-sighted, there is a glimpse of Green Island, away on the horizon. As the train

rounds the famous bridge, Stoney Creek Falls splash in the moonlight. Passengers riding in the van have a clear view of the locomotive's headlight as the lengthy train snakes its way up the mountainside.

Kuranda itself merits only a short stay, and the train's small group of passengers contrasts strongly with the hundreds who descend onto this platform daily from the Kuranda Scenic Railway trains.

It could be said that "The Last Great Train Ride" really begins here. That title was dubbed on QR's Forsyth train by the Queensland Government's Northern Development Office, which saw an opportunity for promoting the train's tourist potential. They produced a most attractive brochure in conjunction with the owners of the Goldfields Tavern at Forsyth, and the Central Hotel at Einasleigh. It makes informative and interesting reading – and we have reproduced from it an alleged "guide" to some north Queensland language.

Leaving Kuranda, train 7A90 (for that is its number and official description) rolls beside the



TRACKS



AN 'EMPTY' SHOPPERS' SPECIAL HEADS FOR GREENVALE CLIMBING THE SCENIC HERVEY RANGE. RIGHT – A TOURIST FROM THE SOUTH BASKS IN QUEENSLAND'S WINTER SUNSHINE ON THE BANKS OF THE COPPERFIELD RIVER, EINASLEIGH, WITH THE RAILWAY BRIDGE IN THE BACKGROUND.



▶ Barron River and then over the fertile Atherton Tableland with its wide range of crops. Coffee has been grown here for many years. Apart from staples such as wheat, there are mango plantations, rice grown under irrigation, tobacco near Mareeba, and recently introduced sugar cane which is carried down to the coast and milled at Mossman.

There is a break of more than two hours at Mareeba while the train is shunted and remarshalled for the long trip west. On hand for the comfort of passengers is an urn supplying coffee and biscuits on an honesty system,

provided by the railway staff. Passengers are also given an information sheet and a name tag; two more promotional initiatives by Mareeba's railwaymen.

Finally, in the very early hours of Thursday morning, as passengers make themselves comfortable in the car van, 7A90 heads west and begins the climb on grades 1 in 50 up the Great Dividing Range. Time is allowed for shunting at Dimbulah, and a short stay at Lappa – but the next major stopping point is Almaden, at around 5.30am.



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TWIN DIESEL RAILCARS CROSSING THE BURDEKIN RIVER ON A 402-METRE BRIDGE, LONGEST ON THE GREENVALE RAILWAY. THE LINE TO GREENVALE WAS BUILT TO HANDLE LARGE TONNAGES OF WET NICKEL ORE. FOUR DIESEL-ELECTRIC LOCOMOTIVES IN MULTIPLE CAN HAUL TRAINS OF UP TO 92 WAGONS GROSSING MORE THAN 5,000 TONNES WITH RULING GRADIENTS OF 1 IN 100. BRIDGES, TUNNELS, AND THE TRACK ITSELF WERE BUILT FOR THIS PURPOSE.



Between Dimbulah and Almaden there are two spectacular Range ascents – the first from a crossing siding at Verdure, towards Cape Horn. Formerly the location of a water tank for steam locomotives, Cape Horn is situated at the confluence of two major watercourses, and the climb through the river gorge is very picturesque.

There is a long winding climb from Petford to Lappa on the Featherbed Range, with sweeping views eastwards towards the low hills of the Great Dividing Range. Most passengers, at this point, are settling down to some sleep – albeit not on “Featherbeds”.

For the mining industry

All railways west of Cairns were built to serve the mining industry. The Cairns Range railway itself was designed to connect the Herberton tin fields with the coast. The Queensland Government completed construction through Mareeba to Herberton in 1910, and extended onwards to Ravenshoe by 1916.

The railway from Mareeba to Dimbulah, Lappa, Almaden and on to Chillagoe was built by private enterprise, the Chillagoe Railway and Lines Ltd, to open up its copper mines. Construction commenced in 1898, and was completed in 1900.

The Chillagoe Company worked the line with its own locomotives, and provided some of its own rolling stock. Branch lines ran from Dimbulah to Mount Mulligan in the north, where a coal mine was built by the company to supply its smelters.

From Boonmoo, two-foot (60cm) gauge tramways ran to the tin fields at Stannary Hills and Irvinebank. Lappa was the junction for the fifty-three kilometre line to Mount Garnet, worked by the Chillagoe Company, but partly owned by the Mount Garnet Freehold Copper and Silver Co which operated a copper mine at the terminus.

The line from Almaden to Forsyth was also built by the Chillagoe Company, and opened in 1907. Altogether, the company's lines comprised one of the largest privately-owned railways in Australia.

When 7A90 arrives at Almaden, the sun is rising or has just risen (depending on the season) – and passengers get their first daylight glimpse of Queensland's Eastern Savannah country.

The general store at Almaden caters for train passengers with breakfast-type snacks. I joined 7A90 at this point, after a comfortable night at the Railway Hotel. As I left it, Mrs Boardman was contemplating baking some of the four thousand pies she sells annually in a township with a population of 50! The other pies, it must be said, are sold to tourist coach travellers on their way to the famous caves at Chillagoe.

Since Almaden is the junction for the Chillagoe/Mungana and Forsayth lines, there is shunting to be done here and the full time allowance of one hour is usually needed.

Shunting with an earthmover

Next stop is Ootann, where there is a limestone quarry with hopper facilities for the loading of calcium oxide in bulk. QR takes this product to Einasleigh, for use in the resurgent gold mines. On the day of my visit, 7A90 received a little shunting help. An earthmover from the limestone quarry itself was brought in to move bulk oxide wagons and make placement easier in the limited siding facilities.

7A90 continued its journey, on its "maid of all work" duties. A fettlers' camp was being removed from Gelaro, and there were items of equipment to be picked up and taken further down the track. There was a stop at Bullock Creek, to unload supplies for the fettlers stationed there.

About eight kilometres further on the line crosses the Tate River on a typical wooden bridge. Although in June the countryside was very dry, there was evidence in the valley of the Tate of just what can happen during the wet season. All the vegetation is stretched in the direction of the river flow, with debris and branches from 1991's record wet as evidence of the volumes of water which come sweeping across this country during the summer.

Lyndbrook is an important stop, where engine crews change. There are rest facilities here for the crew, and a new crew takes the train forward towards Forsayth. Driver Ray Gane and guard Bruce Munro were in charge, both relieving regular crewmen based at Almaden.

At Lyndbrook, the train's only non-tourist passenger descended. He had come from Cairns to take work on a cattle station nearby and walked away from the siding into the bush.

The occasional flash of blue wings under a kingfisher, or the black and white pairs of butcher birds, liven the eucalyptus forest as we proceeded onwards through Fossilbrook and Frewhurst.

Mount Surprise is a major stop. The main road from Cairns through the Atherton Tableland towards the extremities of the Gulf Country at Normanton meets the railway here. There is a hotel, service station, cafe/store. Although cattle traffic on the railway has declined, there are still sales at Mount Surprise and 7A90 shunts here into the cattle sidings as well as into the general goods area.

Mount Surprise break point

For many years, Mount Surprise was a significant break point in the operation of the line. In 1927, severe floods had damaged the Etheridge railway which, from that date, was worked firstly with rail motors hauling goods wagons, and then with specially-built diesel-mechanical locomotives from 1939 onwards. Reconditioning in 1951 allowed the use of steam locomotives to Mount Surprise, from which point the diesel-mechanicals took over. One of these locomotives is now plinthed in Forsayth itself.

I ate my lunch in the quiet of the car-van while the shunting took place. One of the younger passengers carried his portable stereo to the platform of the goods shed, stripped to the waist and sunbaked with a can of beer during the two-hour stay. The hotel and cafe provided refreshments for 7A90's passengers.

We were two hours late by the time we left Mount Surprise for the next port of call, Einasleigh. En route are three major river crossings, dry during June, but again with evidence of vast volumes of water during the wet season.

The last of these rivers is the Copperfield, just outside Einasleigh. Once over the bridge, the train stops to set down passengers, allowing them an easy walk along the banks of the river to the Einasleigh Gorge. There is time for swimming in the water hole, and the aforementioned younger passengers took their beer with them into the water. Others strolled across the paddock to the Central Hotel, a two-storeyed, verandahed building typical of many in this part of Queensland.

The locomotive's siren indicated readiness for departure. Some of the shunting was left to be performed on the return trip because we were running late.

7A90 departed from Einasleigh very much shortened, with just one louvre wagon for general goods, one travelling camp wagon for the crew, and the car van.

Hampered by the light rail with its speed restrictions, we could not make the Delaney Gorge in winter's daylight. The sixteen kilometre descent through this Gorge to Forsayth is one of the more spectacular parts of the trip. In the early dusk, the locomotive headlights picked up the sides of the escarpment, home to rock wallabies and other wildlife. The river itself can be seen, many metres below, from the railway ledges.

A few blasts on the horn

It was quite dark when we reached Forsayth just before 7pm. A few sharp blasts on the horn had alerted the locals to the fact that the weekly train was about to arrive, and they had come down to the station with their four-wheel drives to pick up supplies.



TRACKS



Unloading supplies for the fettlers camp at Bullock Creek.

Similarly, the staff from the Goldfields Tavern was ready with a warm welcome to its guests – their luggage being conveyed the few hundred metres in a pickup truck.

Dinner, bed and breakfast are offered to travellers at the Goldfields Tavern and accommodation is provided in nearby homes if the hotel's basic, but comfortable, "dongas" (portable accommodation units) are full. The tavern has a collection of agates on display – evidence of gemstone prospecting in the nearby hills.

Those returning to Cairns the following day by train (now renumbered 7C91) leave at 6.30am. It is dark in the winter, and too early to see the black cockatoos with their vivid orange tails, breakfasting on scraps in the tavern's yard. 7C91 takes another twenty-three hours for the return journey to Cairns, reached around 5am on Saturday mornings.

For a leisured look at a fascinating part of Queensland, in a mode of transport reminiscent of the early twentieth century, the journey to Forsyth is one to be remembered and savoured.

The Greenvale Shoppers' Special

The nickel mine at Greenvale, on the slopes of the Great Dividing Range is remote from major settlements. From the early days of the mine's operation, therefore, Queensland Railways has provided a diesel railcar service for residents of the township, offering them a day's shopping in Townsville, on a fortnightly basis. Patronage on the service has declined as roads in the area have been improved (although the travelling times are roughly the same), but the service continues.

In fact, so rugged is the countryside and so remote from easy road rescue access, that two 2000-class railcars of the QR fleet are used on the run – if one suffers mechanical trouble, the other can continue the journey.

Not surprisingly, because the service is geared to Greenvale residents, it is little used by tourists. But those who do make the journey are rewarded with spectacular views, and a totally different experience to "The Last Great Train Ride". The Greenvale railcar leaves Townsville "empty" every second Wednesday around 1.40pm.

I joined the cars in Townsville station, noting the extensive re-arrangements which have just taken place in this area. A direct connection has been provided between the QR's North Coast main line and Townsville wharf, allowing ore trains from the wharf to run directly to the nickel refinery at the Yabulu. Northbound passenger trains now approach Townsville platform in an anti-clockwise direction, and our railcar followed the "Sunlander" northwards. An extensive program of fencing the tracks leading out of Townsville in the direction of Garbutt will permit higher speeds on this section shortly.

The Greenvale railway branches from the North Coastline at Cobarra, the junction complex designed by QR to serve the Yabulu nickel smelter. With the decline in ore production at the Greenvale mine, Yabulu receives supplies by sea from Indonesia and New Caledonia through the port of Townsville, and thence by rail.

Rail traffic is heavy when shipping is in port.

Leaving Cobarra, the Greenvale line crosses the North Coast line on a flyover and heads towards the Hervey Range. The first thirty-four kilometres of line, as far as the refuge loop at Kadara, provide spectacular travelling on the climb into the range itself. There are three main tunnels, two "cut and cover" tunnel sections, and

a number of cuttings in excess of sixty metres in depth. Sections of rainforest nestle in the gullies.

A tall brick chimney in the bush

Hervey Range is crested at Thorton Gap, just prior to reaching Kadara. Once at the top, the railcar picks up speed to its 80km/h maximum on track which provides excellent riding qualities. A tall brick chimney stands lonely in the bush, monument to an old mining activity. Supplies are delivered to fettlers camps en route, and an extra security guard is provided on "pay" Thursdays. The railcar is always welcome on those days! And there are little diversions of excitement when for example a captured wild boar, destined for the table, escapes from a fettler's yard and is chased by his dogs when the train comes to a standstill.

The line maintains a generally westerly direction right through to Greenvale. It crosses thirty-eight bridges, all of pre-stressed concrete construction and designed to accommodate rolling stock with an axle load of 23 tonnes. The longest, 402 metres, spans the Burdekin River, while the Clarke River crossing is almost as spectacular. The railway was officially opened by the then Deputy Premier and Treasurer of Queensland, Sir Gordon Chalk, on 9 August, 1974.

The "empty" railcar reached Greenvale right on time at 6.15 pm – in winter darkness. The sunset had been spectacular, as is often the case in Queensland's west – and its dying glow enabled us to see Miners' Lake siding, the source of some cattle traffic also carried over the railway. Apart from a little cattle and ore, which is declining, the line has a current freight movement of concrete transmission line poles for the extension of Queensland's electricity grid to Normanton. The poles are unloaded at Miners' Lake and conveyed by road for the rest of the journey through Forsyth and Georgetown to their destination.

The railcar crew stays overnight at Greenvale, and begins the journey to Townsville at 6 am next morning. Townsville is reached at 10.15 am, allowing passengers eight hours in that city, before the return movement to Greenvale.

The 240 km from Greenvale to Townsville takes four and a quarter hours; 323 km from Cairns to Forsyth takes twenty-three hours! Both journeys climb the coastal ranges and reach the same kind of country. The travel experiences, seventy years apart, are notable different and equally enjoyable.

☐ Footnote

Rail services to Forsyth and Greenvale are subject to alteration without notice. Travellers to Forsyth are required to provide their own food, blankets, etc. Passengers intending to travel on this train are requested to seek confirmation of the service by contacting Queensland Railways at Cairns, telephone (070) 526 2411. ☐

The language North Queensland style

It's a good idea to know something about the lingo of the back country up north when you head out bush in Australia.

Outlined below is a brief guide to this most important aspect of outback survival.

☐ Dough banger

Station cook. Comes from the fact that they are always banging dough (making bread or damper).

☐ Square hook or diamond-hook

Usually what fishing nets are referred to when used illegally. "Put the square hook in last night."

☐ Overland trout: Goannas.

☐ Lizards, underwater goannas: Crocodiles.

☐ Micky

Unbranded wild bull up to about two years of age.

☐ Put my brand on her

What a bloke might say when getting serious about a female.

☐ Got her branded and earmarked

Usually means he got married to her.

☐ She's got me hobbled

What he says after he's got married and she's got him under the thumb.

☐ Got my windbreak with me

Usually means he's out camping and has his wife with him. Definitely a no-no with feminists.

☐ Choke down

What a bloke does when he goes to sleep after a heavy drinking session. "Fred's choked down." You can get away with saying "Fred's choked". Everybody will know what you're talking about.

☐ Rum'n'choke: Rum and coke.

☐ Bush champagne

Methylated spirits and Sal Vital.

☐ Blue dog, bluey: Foster's beer.

☐ Barbwire stubby: XXXX beer.

☐ Terrorist

Name given to tourists who shoot at anything that moves.

☐ Red-eyed bream

Usual name given to barramundi caught during the closed season.

☐ Mexicans

Anybody who lives south of the Gulf Country.

☐ Hanging dog

Dog used to run down wild cattle.

☐ Good man

Does not refer to the bloke who goes to church on Sunday or who dotes on his wife and kids or who is generally a pillar of the community. Refers to a bloke who can ride a rough horse, find his way around in the bush, fix an engine, throw a bull, "Good man that bloke".

☐ Scrub: Rainforest.

☐ Ringer: Stockman.

☐ John Wayne: Flash ringer.

☐ Crossbar motel: Jail

A re-build program attracts world interest

Technology developed in Western Australia to re-manufacture older diesel-electric locomotives to enable them to achieve high performance levels is earning enthusiastic support from private sector and government rail operators. The technology is winning orders against international competition and seems certain to strengthen the position of the rebuild option in railway management strategies.

In Perth recently Mr Richard Carter, general manager of BHP Iron Ore, accepted delivery of the first of 14 locomotives that are being rebuilt by A. Goninan & Co. Limited to modern General-Electric DASH8 standards. BHP's Iron Ore, formerly Mount Newman Mining pioneered the move among WA heavy haul operators towards rebuild technology in the mid-1980s. The move reflected the railway management's determination to find the most effective way to improve haulage performance and save on costs.

The first steps in this direction were both far-sighted and tentative because of the "unknowns", but the close technical relationship that grew up between BHP Iron Ore and Goninan railway management and engines soon set a course that has proved remarkably effective.

The company's recent placement of a new \$40 million order to re-manufacture 14 Alco locomotives to DASH8 technology would be vindication in itself, but it is acceptance of the concept and its benefits by other users that provides the final accolade to BHP's sense of determined innovation.

At the Goninan-BHP hand-over, WA Deputy Premier and Minister for State Development, Mr Ian Taylor, cited orders to BHP, Robe River Iron Associates, Westrail and AMC Mineral Sands as a reflection of the wide acceptance of the technology and "can-do" manufacturing performance of Western Australia. He complimented Goninan for the innovation that

uses a 1960s underframe to carry state of the art DASH8 technology and the world-first application of the DASH8 technology to a narrow-gauge rail system.

Some rail engineers were initially sceptical of Goninan's ability to scale down the DASH8 to meet an axle weight requirement of 16 tonnes on the 1067mm WA gauge. In the event a substantial improvement in power-to-weight ratio was possible.

The standard gauge DASH8's being supplied to BHP Iron Ore and Robe River weigh 196 tonnes and develop 2983kW (4000hp).

The Westrail P-class locomotives weigh 98 tonnes and develop 1840kW (2500hp). Westrail has reported a 30 per cent improvement in tractive effort and a 15 per cent reduction in operating expense (compared with the locomotive replaced by the P-class). Westrail's enthusiasm showed through in its monthly staff publication *Westrail News*, in an article headed *New locos are real winners, say our engineers*.

The article continued: "The first P-class locomotives entered service in December 1989 and since then have continued to justify the decision to replace older models . . . The P-class showed a fuel saving of 15 to 20 per cent . . . Little time has been lost through breakdown. The P-class were available more than 90 per cent of the time during an eight month period, an excellent result given their complexity."

A "first" in their own way

Mr Ross Bosworth, divisional general manager of Goninan, WA said that all the locomotives produced by the division had, in their way, been a first in either application of manufacturing technology or application of international technologies to suit local conditions.

The general manager of Goninan's Railway

Products Division, Mr Michael Hayes, told *Network* that the development of new technologies in Western Australia had arisen initially from strong team-building between customers like BHP Iron Ore and Westrail, and Goninan technical staff. This close relationship oriented towards performance had been extended to other customers, including Australian National, Robe River, and Hamersley Iron.

"We all set out to look for a solution that worked and achieved very quantifiable results for the customer," he said. "The results have been an outstanding success and a great tribute to the professionalism and foresight of all involved."

"A chapter of Australia's railway history is being written in Western Australia by operators, designers and manufacturers and it has created technology and performance levels that are the best in the world."

Goninan commenced manufacture of railway products in Western Australia in 1986, on the strength of its contract with Mount Newman to rebuild three old Alco type locomotives to GE DASH7 standards. Since that time, the company has acquired substantial manufacturing premises, first in rented premises and currently at its own

sites at Bassendean, Bibra Lake and Karratha.

It has a workforce of about 300 and has delivered more than 40 locomotives to its Western Australian customers.

Meanwhile, Goninan's technology partner, GE Transportation Systems, has tendered in NSW a far-reaching proposal to reposition the SRA's freight operations by introduction of the "power-by-the-hour" (PBH) concept.

GE tendered its DASH8 series locomotives which consume some 20 per cent less fuel than locomotives currently proposed for the Hunter Valley. In addition, GE will intensify technology transfer, design and product advice to Goninan, which specialises in building high performance light axleload locomotives for the Australian and South East Asian market.

Goninan chief executive, Mr John Fitzgerald said the company was positioning itself with technologically-advanced operations in WA and NSW to export technologies and railway products into South East Asia, the Indian Ocean and Pacific areas.

"These developments are highly significant not only for Australia's railway industry, but also for Australia's export performances," he said. □

\$40M ORDER FOR DIESEL RAIL CARS

A \$40m order for the design and supply of seventeen diesel railcars to the State Rail Authority of NSW to be known as the Explorer railcars has been placed with ABB Transportation. The railcars are for country services from Sydney to Armidale, Moree and Canberra. The new trains will introduce a high level of service and passenger comfort as well as providing a safe and reliable alternative to other modes of transport. Daily services are planned each way to Armidale and Moree with three daily services to Canberra.

The new Explorer railcars will complement the excellent service provided by the XPT trains which have been in service since 1981. They are a new design incorporating proven technology to ensure a high level of reliability. A significant number of new design features and enhancements is being introduced to provide a cost effective and fuel efficient railcar, particularly in the engine and the transmission areas.

The railcars are designed to have a minimum consist of two cars with a maximum combination of up to eight individual cars. Three different types of cars are included in the seventeen on order and these are a driving power car with buffet facilities, a driving power car with luggage facilities and an intermediate power car, i.e. a motorised car without luggage or buffet facilities.

There are two principal types of train consists proposed for the various services.

The first is a two-car consist being a driving power car with buffet facilities and one with luggage facilities with accommodation for 93 seated passengers. The second consist type is for three cars, one being a driving power car with buffet facilities, an intermediate car and a power car with luggage facilities with accommodation for up to 163 passengers.

The railcars will be designed to provide flexibility for SRA operations.

Each railcar body is being constructed in stainless steel with the use of fibreglass reinforced plastics in such areas as the driver's cab and will be designed to provide a smooth, streamlined and attractive cab including a panoramic windscreen. The body will also incorporate the latest in European body styling and be enhanced by the new Countrylink livery and logo.

As the railcars will have journey times of up to 10 hours, particular attention has been given to a high level of passenger comfort and facilities.

The seating layout will ensure an unobstructed view for most passengers through the windows. The seats will be of a high standard using the latest available designs and woollen materials and incorporating a rotating and reclining feature. ▶

TRACKS

Special attention will be given to achieving low vibration and noise levels and the latest technology will be used to ensure engine and wheel/rail interface noise levels are kept low.

The passenger doors are an extended sliding plug type being the first of this type to be used on a railcar in Australia. The doors are power opened and power closed.

Some of the other facilities include a booked luggage area, disabled passenger provisions, baby changing facilities, luggage racks, reading lights, night lights and a "seat meal service" to deluxe seats. All these facilities will be designed using the latest available technology to provide utmost convenience for passengers and crew.

The railcars will also include design features in line with the latest Railways of Australia fire safety requirements making them perhaps the first in Australia to incorporate these requirements.

The railcars will be designed to operate with adequate redundancy built into the propulsion system with a water-cooled 353kW diesel engine fitted to all cars. There is a water cooled auxiliary alternator consisting of a diesel engine and alternator with a rated output of 155kVA. There is automatic fire protection for both the main traction engine and auxiliary engine.

The latest technology in onboard monitoring will be included to monitor and record the operation of the railcar and its associated equipment. Monitoring will provide a log for statistical information translated into graphical form on a personal computer for use by maintenance engineers in fault-finding and to assist in optimising maintenance practices.

The railcar features a number of back-up safety systems, including a vigilance control system which, coupled with the Railways of Australia specifications will provide a high level of safety for passengers and crew. The bogies are of modern ABB design with coil spring primary and air spring secondary suspension systems and are based on bogies which have been successfully trialled for a number of years under an XPT car. The bogies also feature a simple robust fabricated frame; anti-roll bar; wheel mounted disc brakes; spring applied parking brakes; package bearings; and trailing arm and axle guidance.

The railcars are fully airconditioned by a single airconditioning unit with two separate airconditioning systems for a high level of reliability and they have a combined rating of 34kW cooling capacity. The single airconditioning unit will service all passenger and crew areas. □

System for selection and ordering spare parts

As a further evolution in the computerised compilation of technical manuals for the automotive industry and defence, Leigh Mardon have developed an electronic cataloguing system for the selection and ordering of spare parts.

Running under MS DOS and the user friendly Microsoft Windows, this system actually allows the user to view the exploded parts diagrams and text information on a computer screen, and to instantly select specific sections for more information.

Leigh-Mardon's systems manager,

Mr Carl Ward, based the development of the product on the principles of accuracy and flexibility of operation and cost-effective, rapid retention training programs. Skilled users can input a product number to get directly to the section they want, while others can find their way logically through sub-sections of the equipment.

The correct product number and quantity are then available for transmission into a mainframe system, EDI or other means of communication.

Leigh Mardon has committed substantial resources to the

development of electronic catalogues, especially using CD ROM technology. They believe that the next five years will see bottom-line oriented companies recognising the need for replacement of bulky and inaccessible paper-based information by rapid retrieval, PC based graphical information systems.

For further information, contact:
Leigh Mardon Graphics Division,
15-31 Keys Road
Moorabbin Vic 3189.
Telephone: (03) 556 8140
Fax: (03) 553 1740

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PARTNERS IN RAIL'S PROGRESS

The first National Freight Congress (organised by the Victorian Road Transport Association) at Melbourne's World Trade Centre attracted a very strong participation from rail interests. V/Line Freight itself was a major exhibitor with a well-patronised display stand.

V/Line's display theme was "Partners in Australia's Freight Business" and within walking distance of the display were exhibits by some of its real-life partners - Golden Brothers, K & S Freighters, A R Neal/FCN, Railex, and United Transport. In the outdoor display area another partner FCL Transport was represented.

All are partners of V/Line Intermodal in interstate freight movements and users of Superfreighter services.

The congress program has a high rail component particularly on the final day when 65 people attended the rail freight forwarders' seminar, and in the afternoon a bus-load of delegates visited the V/Line South Dynon container terminal to see at first hand the development taking place there. They were hosted by V/Line's Intermodal Business Group.

In the front seat of the bus was the Congress keynote speaker, Mr Hans Peters, who spoke highly of V/Line services after the bus tour. Among speakers at the congress was Mr Marinus van Onselen, V/Line Intermodal Business Manager.

OVERNIGHT FARE FALLS

The State Rail Authority of New South Wales and the Public Transport Corporation of Victoria, have dropped the economy fare on their overnight Sydney-Melbourne Express from \$85 to \$49 to win budget-conscious customers.

Additional seats have been introduced on the overnight service.

State Rail Chief Operating Officer, Vince Graham, and PTC Acting Chief Executive, Norman Walker, say the changes are



The impressive V/Line display at the first National Freight Congress in Melbourne.

necessary in the face of increased discounting by the airlines.

"Up to 210 additional seats are being provided on the overnight service, maintaining 84 per cent of the current passenger capacity between Sydney and Melbourne. Sleeper, dining car and lounge car services will continue to be provided," Mr Walker said.

"Both rail organisations will closely monitor demand, and additional services will operate in peak holiday periods when necessary?"

AIMING TO BE THE ONLY ONE

Australian National has launched a campaign to make The Ghan luxury train to Alice Springs profitable by the middle of next year thus making it "the only train in the world that covers its fully distributed costs," according to AN's passenger and travel general manager, Graeme Templer.

Once the economic viability of The Ghan has been proven AN hopes to turn its attention to the Indian-Pacific with a view to securing funds for its upgrading to equivalent standard.

Cost recovery of The Ghan in 1989/90 was 60 per cent based on fully distributed costs. AN is conscious of the need to maintain and improve a value-for-money product for customers in examining ways to achieve profitability.

PERTH'S NORTHERN SUBURBS LINE TAKING SHAPE

The new railway line from the city of Perth to its northern suburbs is taking shape with platform construction at Perth station and work along most of the route to North Joondalup station.

Completion of a tunnel at Roe Street is scheduled for March next year.

Design work for new stations is under way and orders have been placed for 81,400 pre-stressed concrete sleepers with pandrol fastenings. Twenty-two two-car trains have been ordered from ABB-Walkers.

KALGOORLIE STATION RE-LIVES

Kalgoorlie's old railway station, opened in 1896, is being refurbished. The division engineer's office, original kitchen, cold storage area, locker room and toilets have all been restored.

Westrail is spending another \$300,000 to complete the next stage which will include the booking office and public waiting room area in time for Kalgoorlie's centenary in 1993.

New office space is being added to the station built in the original style and using local ashlar stone originally used for three Westrail houses which later were demolished and the stone buried underground.



Log gardens at the Milsons Point station, Sydney.

LOG GARDENS A STATION ATTRACTION

Log garden beds on the platform at Milsons Point station have added a new dimension of visual appeal for Sydney commuters and motivated rail staff into suggesting other ways of beautifying their station.

Seven log beds 3.6 metres by 1.0 metre now accommodate a variety of shrubs and border flowers on the first station out of the city on the North Shore line.

The gardens have been installed also at other suburban stations in a program jointly undertaken by the State Rail Authority, "Life Be In It" and Koppers Timber Preservation Pty Ltd.

At Milsons Point, as at the other stations where the log beds have been built, the gardens are adding a splash of colour, allowing for the seasonal variations in flowering.

Stationmaster Gary Spencer would like more log garden beds on the lower pedestrian concourse under the station that links the eastern and western accesses. The area was recently resurfaced in quarry tiles replacing the black bitumen footway built in the early 1930s.

LIGHT RAIL 91 ATTRACTS 11 COUNTRIES

Exhibitors from eleven countries have booked space at the second international Light Rail Exhibition (Light Rail 91) to be held in Manchester from 19 to 21 November, 1991. Countries represented are UK, Austria, Belgium, Denmark, France, Germany, Italy, The Netherlands, Norway, Switzerland and the United States.

The event is being held in Manchester to coincide with the proposed opening of the first stage of the city's Metrolink light rail system. Many of the displays at Light Rail 91 will reflect work carried out on this project.

Accompanying the exhibition will be a conference organised by Dr Lewis Lesley of Transport Science Ltd. It will be the sixth international conference to be run by Dr Lesley in his series on electrified urban public transport.

Enquiries: Mack-Brooks Exhibitions Ltd, Forum Place, Hatfield, Hertfordshire, England AL10 0RN. Fax: +44 707 275544. Telex: 266350.

Conference: Dr Lewis Lesley, Transport Science Ltd, 17 Hope Street, Liverpool, England L1 9BQ. Fax: +44 51 707 0001).

\$10m CONTROL CENTRE AT CENTRAL

A new \$10 million high-tech train control centre has opened at Central Railway Station, Sydney, and is directing the movements of the 90 trains which pass through the station each hour, carrying 800,000 passengers a day.

The new equipment will provide train controllers with a continuous stream of information on VDUs from staff and signal centres around the CityRail network which will enable them to act much more quickly than under the previous system.

The control centre will include the mechanical control section which is in charge of a team of train equipment officers or "train doctors" who join and repair trains on the run to avoid cancellations.

The new train control centre is part of the State government's \$600 million campaign to upgrade communication and signalling equipment. Improvements can be seen already with on-time running currently at about 93 per cent.

WORKER REHAB PROGRAM IS A SUCCESS

Staff medically certified for light duties at CityRail, NSW, has fallen from eight per cent two years ago to 2.9 per cent just nine months into a new rehabilitation program.

About 100 workplace rehabilitation co-ordinators have received training in the day-to-day rehabilitation of injured employees. In consultation with an injured employee's doctor the CityRail rehabilitation group aims to design a rehabilitation program within 48 hours of an injury or illness.

The program aims to minimise the disruptive effects injuries have on employee lifestyles.

QUEENSLAND RAIL BOARD APPOINTED

The inaugural members of the Queensland Rail Board of Directors were announced recently. The seven-member board will serve a three-year term ending in August 1994.

Queensland Rail is undergoing the most fundamental restructure in its 126 year history.

The inaugural chairperson is Mr Nev Blunt, a former chief executive officer of the Bank of Queensland. Deputy chairperson is Ms Joan Yardley, the joint owner and managing director of Concept Communications.

Other Directors are:

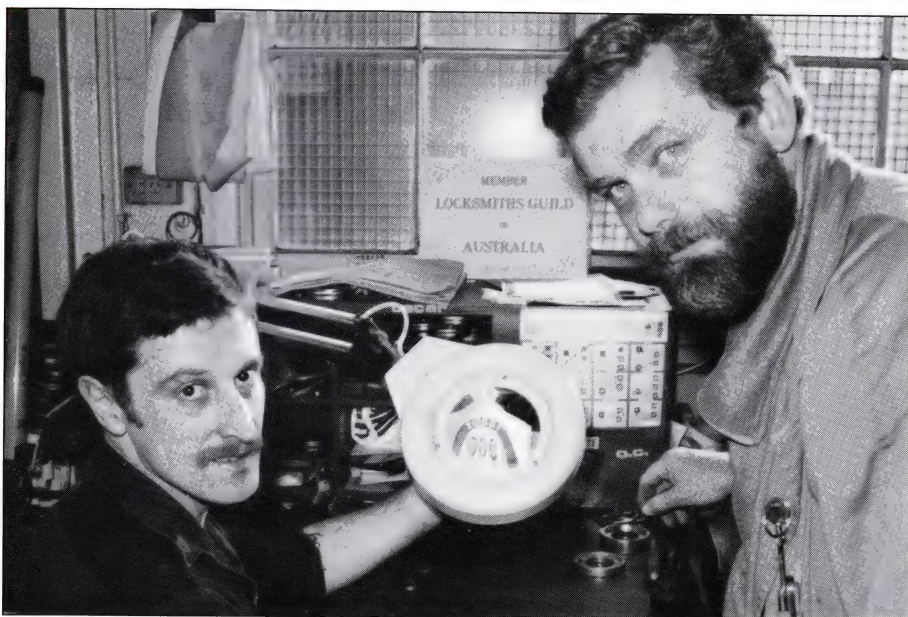
- Cr Noel Robertson, chairman of the Cloncurry Shire Council and deputy chairman of the Regional Organisation of Councils; David Applegarth, principal of Applegarth Insurance and Trade Consultants and a director of Commercial Alliance Mortgage Insurance Co Ltd and Metway Friendly Society; Jim Anderson, the managing director of Queensland Cement Ltd and a director of the State Chamber of Commerce and Industry, the National Safety Council of Australia and the Cement Industry Federation Limited.
- Mrs Margaret Mittelheuser, a stockbroker and consultant to a range of institutions and private clients in Australia and overseas; Don Martindale, the assistant general secretary of the Trades and Labour Council of Queensland.

The board will work closely with the chief executive of Queensland Rail, Vince O'Rourke, and one of its functions will be to put Queensland on a commercial footing and endeavour to make it profitable.

RAIL SALE CHANCE IN INDONESIA

Opportunities for Australian exporters of railway rolling stock, track and equipment in Indonesia are highlighted in a report commissioned by the Australia Indonesia Institute (AII).

The report is by Gavin Williams, a consultant and former head of the



The Season Ticket Shop with toolmaker Oscar Cenitagoya (left) working on a ticket inspector badge, and officer in charge Joe Stoecki.

Department of Foreign Affairs' political and economic section of the Australian Embassy in Jakarta.

It says Australian companies have been slow to take advantage of business opportunities in Indonesia, but now are becoming more aware of the country's economic development and trade liberalisation measures.

Incentives include favourable arrangements for establishing joint ventures including taxation concessions and the ability to transfer funds, including the repatriation of profits and capital.

The AII aims to promote greater political, economic, social and cultural understanding between the two countries.

\$4.5m SIGNAL CONTRACT TO GEC ALSTHOM

GEC Alsthom has been awarded a \$4.5 million contract to provide a modern computer-based interlocking signalling system as part of a signal renewal and modernisation program between Liverpool and Cabramatta in New South Wales.

The new signalling system will reduce system failures and improve on-time running and is expected to be operational by the end of next year.

The CBI, or solid state interlocking system as it is called, has been in use in British Rail services since 1985 and has

undergone extensive safety validation. The GEC Alsthom contract includes extensive operational training for CityRail maintenance and technical staff.

The new signalling will be installed in conjunction with re-modelling of the Liverpool track layout.

SEASON TICKET SHOP CLOSES AT REDFERN

The Season Ticket shop (or Locksmith's shop) at Redfern, New South Wales, has closed after more than 50 years of making locks for railway strong rooms, station cash safes, metal season tickets and gold passes.

The shop which produced 164,297 metal season tickets at its peak in 1955, also made medals and bars for all historic occasions such as Royal visits, the Australian Bicentenary, and the NSW railway centenary in 1955 when 27,000 were struck from original dies.

Long service medals, shields for first aid and ambulance awards, metal tickets and passes, cap and other badges for rail employees, and engravings for gold passes and watches were all part of the shop's work.

The shop employed 30 people on call 24 hours a day at one stage. Staff numbered eight at closure.



The powerful new 81 Class engine will join State Rail's Hunter Valley coal fleet in NSW. Four of them are on order. The handing over ceremony was at Clyde Engineering's Bathurst factory.

RUSH OF COAL TO SEA PORTS

Australian coal destined for overseas industries, the largest single commodity haul by Freight Rail in New South Wales, recorded a 16 per cent tonnage rise during the year to 30 June 1991.

The rises contributed significantly to a record high tonnage of coal carried by rail in NSW – more than 40 million tonnes for the year.

Some 33 million tonnes of this was off-loaded at the Newcastle terminals of Port Waratah and Kooragang. Rail-hauled tonnages into Port Kembla also increased by a massive 25 per cent to more than six million tonnes.

During the year there were some more new records created:

- ☐ 150,000 as the highest daily tonnage to Newcastle
- ☐ 785,000 as the highest weekly tonnage to the same port.
- ☐ 2.9 million tonnes as the highest four-week accounting period.

Freight Rail has a fleet of 1,100 wagons and 58 locomotives servicing the Hunter Valley coal region including 40 powerful 81 class engines.

To the south more than half the coal transported into Port Kembla terminal is carried by rail at present. A \$15 million upgrading project at Helensburgh's Metropolitan Colliery will provide more efficient transport and help to make south coast coal more competitive on world markets.

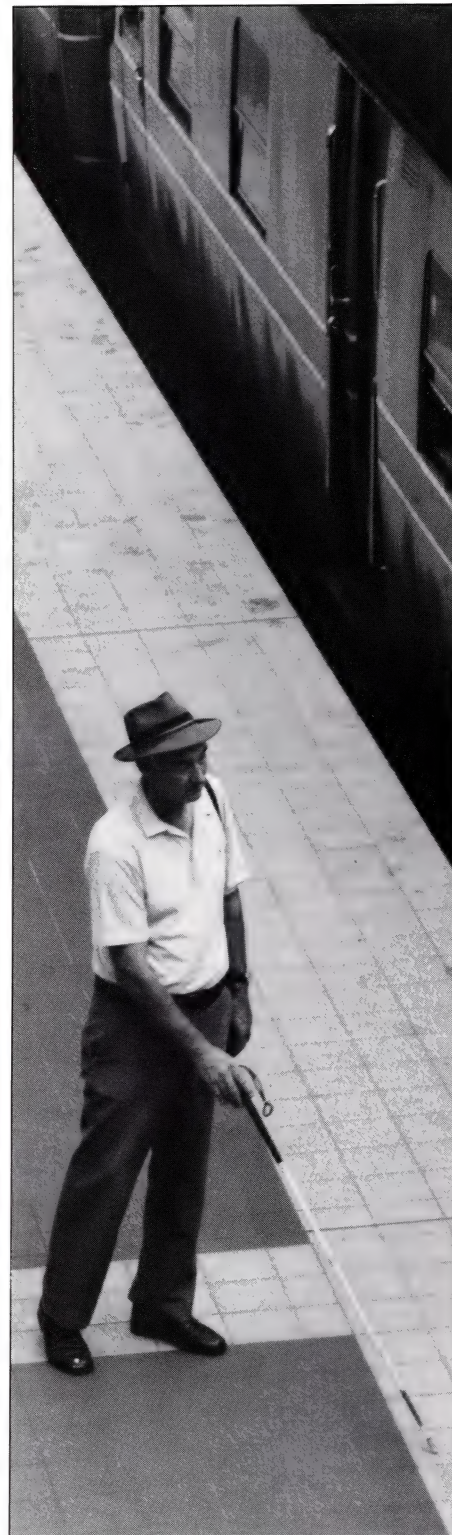
Upgraded track at the coal loader and extended siding length will mean better turnaround times and larger capacity trains up to 31 wagons of 100 tonnes compared with the previous 24 wagons of 76 tonnes. The upgrading will reduce train turnaround from three to two hours.

Each coal train carries the same tonnage as 100 road semi-trailers.

TILES AT PERTH HELP BLIND PEOPLE

Completion of a major tiling program at Perth Station has improved safety and access for blind people.

Tiles specially moulded with raised studs to enable blind people to feel them underfoot, or



Blind rail traveller in Perth, Les Read, uses his cane to feel the tiles at Perth station.

with their canes, mark the edges of the platforms, and routes to exits, stairs and escalators.

The \$260,000 laying contract marked the completion of another stage of the upgrading of Perth Station in preparation for electric train services.

The tiles were designed by Westrail architect Mark Stupart and were specially manufactured.

NEW PRODUCTS & PROCESSES

Information and photographs about new products and services available from Australian companies serving the rail transport industry, particularly those relating to new technological developments, should be forwarded to the Editor, Network, GPO Box 2501V, Melbourne 3001.



Barrel tippler installation at Hay Point, Queensland.

\$4.5m to upgrade rail dumpers

The Engineering Division of Hawker Noyes Pty Limited, has won a \$4.5 million contract to upgrade the coal train tippers at Hay Point terminal in Queensland.

Under the terms of the contract, Hawker Noyes is removing the original machinery and installing four new "barrels".

In order to avoid delays in ship-loading at the terminal the "barrels" are being replaced one at a time.

Hawker Noyes engineers are carrying out the installation in co-operation with the client's rail and shipping movements.

The "barrels" weigh in at 82 tonnes and eight lifts in excess of 75 tonnes are necessary to carry out the delicate operation of siting and connecting them to the tippler mechanism.

The Hay Point Coal Terminal is situated just south of Mackay. It is Queensland's leading coal export port and handles close to 20 million tonnes of coal each year, primarily from Utah's Bowen Basin mines.

Hawker Noyes has been associated with Hay Point since its earliest operations. The company commissioned the first double rail car tippler in 1971 and duplicated that system in 1974.

Enquiries: Hawker Noyes Limited, Engineering Division, Telephone (02) 741 9000, Fax (02) 648 3249.

New elastic rail fastener in WA

A new style of elastic rail fastener designed to isolate the vibrations that cause groundborne and secondary airborne noise in tunnels, bridges and viaducts is being used for the first time in Australia by Westrail in a section of the \$220 million northern suburbs transit system.

The fastener, known as the Alternative 1 (Alt 1), has been developed for direct fixing to hard trackbeds and eliminates the need for ballast and sleepers, greatly simplifying rail construction and ensuring virtually maintenance free operation.

In total, 2770 Alt 1 elastic rail fasteners will be used to fix 400 metre long dual rail tracks in Perth's first rail tunnel at Roe Street in the city.

Designed by German company Clouth Gummiwerke AG of Cologne and manufactured under licence in Australia by Delkor Pty Ltd, the Alt 1 is an integral unit formed by bonding a steel rail base plate and external mounting frame with vulcanised rubber.

Enquiries: Delkor Pty Limited, PO box 971, Bondi Junction, NSW 2002. Telephone (02) 387 6900, Fax (02) 387 7870.

New railcard for business

A new travel card designed to attract the business traveller out of the company car or taxi and on to rail has been introduced in New South Wales. Unlike conventional rail tickets, the Business RailCard is transferrable and can be used by anyone in an organisation.

The card is issued to the organisation, not to an individual,

and any employee can use it for travelling around during their business day. It can be bought on a quarterly or yearly basis.

The new card can reduce employee travelling costs and its purchase price is tax deductible.

The cards cost 25 per cent more than normal commuter yearly and quarterly passes, but have unlimited use for an unlimited number of persons within an organisation for business travel.

Different cards are available depending on the main area in which the organisation's employees will be travelling.

☐ Gold cards cover the entire CityRail network and cost \$850 quarterly, or \$3,300 annually.

☐ Silver cards cover all of the metropolitan area and cost \$440 quarterly, or \$1,600 annually.

☐ Blue cards cover several areas, for example Chatswood to the city, and cost \$163 quarterly or \$591 annually.

NEW PRODUCTS & PROCESSES



A new fast rebuild service for rail crossings.

Fast and quick rebuilding of rail crossings

State Rail of NSW Civil Training College has developed a method of rebuilding a rail crossing in two and half hours, using Lincore 33 self-shielded wire electrode.

This hardsurfacing arc welding rebuilding technique is much faster than the oxyacetylene method and, of course, cheaper than cutting out the worn crossing and replacing it with a new one.

The procedure, developed in association with Lincoln Electric Australia, is as follows:

- ☐ Level the worn area to remove the work hardened metal and any previous built up metal. This is then ground flush to clean up the area to be welded.
- ☐ After the rail has been preheated with oxyacetylene to 260-300°C, the welding is done with a Lincoln Electric LN-22 wire feeder using 2.00mm Lincore 33 electrode at 180"/m wire feed speed (270 amps) and 27 volts.
- ☐ Welding is continued until there is a substantial build up. There seems to be no limit to the amount of build up possible. Each section of the crossing is treated in the same way.
- ☐ After welding, the rail is ground to give a smooth, level and even surface.

Although all welding is finished at this stage, tests have shown that the high carbon steel rail (0.6 pc) contains a high percentage of undesirable martensite. This needs to be removed with post-weld high heat treatment as follows:

- ☐ Special moulds made by Thermit Company are used to rid the rail of martensite. The moulds (rather like rectangular boxes) are placed on the rail and ignited to produce an exothermic reaction – taking the rail temperature to 600°C.

- ☐ The moulds are left on for a minimum of 15 minutes after they finish burning to allow a full soaking of heat into the rail.

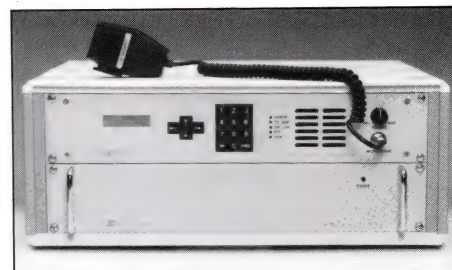
State Rail have cut the time for rebuilding a crossing down to an average of two and a half hours and report service results are excellent.

For example, just out of Newcastle a test crossing was welded in the main line at one end of a station and a new crossing installed at the other.

As every train went over both crossings, each had the same loading. Six and a half months later the new crossing was in need of repairs while the rebuilt crossing showed no visible sign of wear.

To take their testing further State Rail have also tried this method of repair on rail burns caused by loco's spinning wheels when starting.

For further information contact the Lincoln Electric Company (Australia) Pty Ltd, 35 Bryant Street, Padstow, NSW 2211. Telephone (02) 772 7222; Fax (02) 771 4158.



Barrett's interconnect system.

Interconnect tele system

Barrett Communications of Perth has introduced the new SB660 Telephone Interconnect system which enables telephone calls to be made and received in fixed and mobile locations outside of the range of normal telephone services, via HF radio.

Radio users can make and receive their own calls, dialling up to 16 digit numbers. Telephone operators can access the SB660 and then selcall the radio user, simply by using the numbers on their telephone keypad.

The SB660 system incorporates special features and benefits which the company says no other competing technologies have been able to offer to date. The system operates as a completely automatic facility with no requirement for human operator supervision. It has a sophisticated security system which is built in to eliminate system abuse; users can be barred to any level of dialling, such as ISD, STD and local. It stores up to 100 pre-programmed numbers for rapid dialling.

The system incorporates an automatic digital voice enunciator which assists users of the system. Four messages of up to 30 seconds duration can be stored for system use.

An on-board modem allows access to information stored in the SB660 (i.e. full logging of caller identification, call times, numbers called, status of call and duration of call). This feature will facilitate better system management.

Barrett Communications is committed to the transportation industry within Australia and overseas and has a large dealership network to support sales activities.

Enquiries: Elizabeth Natta, telephone (09) 434 1700 or 008-999-580.

NEW PRODUCTS & PROCESSES

Allan Brown of Westfalia inspects the new bogie. Air cushions drop the wagon on to the track when deflated in an emergency. Lower: The new model JDN air hoist.

Braking bogie brings 1000-tonnes down to earth

A new railway bogie with an innovative emergency braking system incorporating deflatable Air Springs has been developed by mining, manufacturing and rural industry transport equipment manufacturers Westfalia Baldwin.

The bogies – one of the first applications of which is a braking wagon for Haughton Sugar's Invicta Mill in Queensland – incorporate inflatable rubber Air Springs in place of solid rubber springs.

The tough, doughnut-shaped air cushions located on each corner of the bogie are instantaneously deflated in an emergency, dropping the brake wagon onto the tracks.

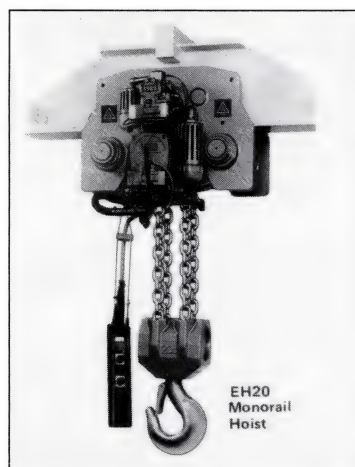
The technique, proven as a safety requirement on all underground mining rail-mounted man transporters and locomotives, brings the vehicle to rest relatively quickly once the brake pads beneath the vehicle make contact with the rail tracks.

Mr Allan G. Brown, manager, sales and marketing, Westfalia Pty Ltd said: "It's not uncommon now to see trains in excess of 1000 tonnes (gross train weight) travelling at 40km/h so decreased braking time in an emergency is important."

Air Springs, distributed in Australia by Air Springs Supply Pty Ltd, contain no moving parts.

In developing its Air Springs emergency braking, Westfalia Baldwin also developed a carriage linking that permits the braking wagon to drop 150mm onto the track while remaining securely fixed to wagons before and after.

Enquiries: Mr Chris Webb, Air Springs Supply Pty Ltd, 137 Bowden Street, Meadowbank 2114. Telephone (02) 807 4077, Fax 807 6969. Mr Allan G. Brown, Westfalia Baldwin, 10-14 Kellogg Road, Rooty Hill, Sydney 2766. Telephone (02) 625 2200, Fax (02) 625 2766.



Orion's contract for data system

O Orion Systems, the Australian distributor for Epic Data Inc., has won a \$443,000 contract with the NSW State Rail Authority to supply a data collection system for its workshop division. It will serve the nine workshops throughout New South Wales and two other support areas.

The Freight Rail Division is automating the capture of data in its workshops. It is part of the drive by SRA management to make individual centres become commercially viable enterprises. After the success of a pilot attendance recording system at the Bathurst Workshop, SRA tendered for a system to extend that facility and to simplify other current systems of job tracking and time and attendance processing.

"With the implementation of Epic Data's terminals, the major benefits to SRA will be the elimination of manual data entry errors and being able to assess that data in real time," said John Holliday, managing director of Orion Systems.

The Epic Data solution will provide more than 60 MPT's (multi-purpose terminals) located throughout the four sites of Chullora, Clyde, Goulburn and Bathurst.

Enquiries: Orion Systems, telephone (075) 950 203, Fax (075) 931 769.

New JDN air hoists

Pacific Hoists has added three new models to its range of JDN air hoists. They have a lifting capacity of 20 tonnes, 40 tonnes and include the EH20 monorail hoist with a capacity of 20 tonnes and featuring extremely low headroom.

JDN Air Hoists operate from 6 bar air pressure and are available in a large range of capacities from 250 kg up to 100 tonnes.

Designed specifically for operating in areas where there is danger of explosion they are also highly suitable for operating in extremes of dust, humidity, vapours and temperature.

Enquiries: Pacific Hoists Pty Limited, 71 Atkins Road, Ermington, NSW 2115.

REVIEWS

A Diary of The Bicentennial Train By Tony Gogarty with Ron Preston

Eveleigh Press. \$29.95

A personal account of a celebration

To mark Australia's bicentennial year in 1988, the rail systems operated a celebratory steam-hauled train from Sydney to all mainland State capital cities. On these journeys, the famous NSW Government Railways steam locomotive 3801 attracted widespread interest wherever it went.

This book tells the story of the train from an unusual viewpoint – the personal diary of a man seconded by the State Rail Authority of New South Wales to accompany 3801 on all its travels, and to supervise its maintenance.

It is, therefore, not an ordinary travel book. It tells just how difficult it was to ensure that the train's patrons received everything they expected.

On its trip to Western Australia in May 3801 developed a major problem after leaving Kalgoorlie. The diary describes this problem in detail, and the measures that were taken to overcome it. The

fact that 3801 was repaired, and did manage to return to the east under its own steam, is a tribute to the men who worked on it, and their efforts are duly recorded.

With the assistance of co-author Ron Preston, the bicentennial train story is further developed to include other rail activities which took place during 1988. Peripheral to the journey of the bicentennial train, events were organised to welcome 3801 on its travels.

Photographs – there are many of them – carefully complement the description of the train's working. The standard of their reproduction is high.

Tony Gogarty was given a unique opportunity to follow the progress of the Bicentennial Train. This is an excellent record of what happened on the way.

Published by Eveleigh Press, *A Diary of the Bicentennial Train* is available from rail specialist bookshops for \$29.95 (hardback only). ISBN 0 646 00505 7. □

THE MOSS VALE TRAIN VIDEO

Inform, of Sydney, has drawn on the film archives of its principal Jim Powe to produce this pot-pourri of Australian steam railway history. There is no doubting the quality of the photography, produced from original Kodachrome and high-quality black and white film. Appropriate sound tracks are provided.

The Moss Vale train was the last scheduled steam-working train into and out of Sydney, NSW. The famous 38-class Pacifics worked the train, and there are some beautiful and dramatic aerial shots included in this coverage.

The New South Wales scenic south coast line is also featured, with views of steam workings in the area.

Australia boasted only two rack railways, and the better known of these was the line which connected Queenstown and Strahan in Tasmania. Jim Powe spent some time on the rack section, and the unique Abt tank locomotives are shown working heavy ore trains over the steep grades.

There is footage, too, of steam working on the Central Australian railway, between Quorn and Hawker and between Marree and Alberrie Creek – with one of the NM class 4-8-0 locomotives which were the mainstay of Commonwealth Railways working on these routes.

Running time is approximately one hour. R.R.P. is \$42, from video distributors and hobby shops. □.

Intermodal 90 Volume 111

The Intermodal event is widely recognised as the annual barometer for all those involved with containerisation and the intermodal industry generally.

In 1990, it embraced three major international events: The Container Conference; Intermodal Europe and TankTrans.

Convened by Cargo Systems International in Berlin in

October, the event set out the widest and most comprehensive range of issues and topics, presented by more than 85 speakers of international standing from all corners of the intermodal world.

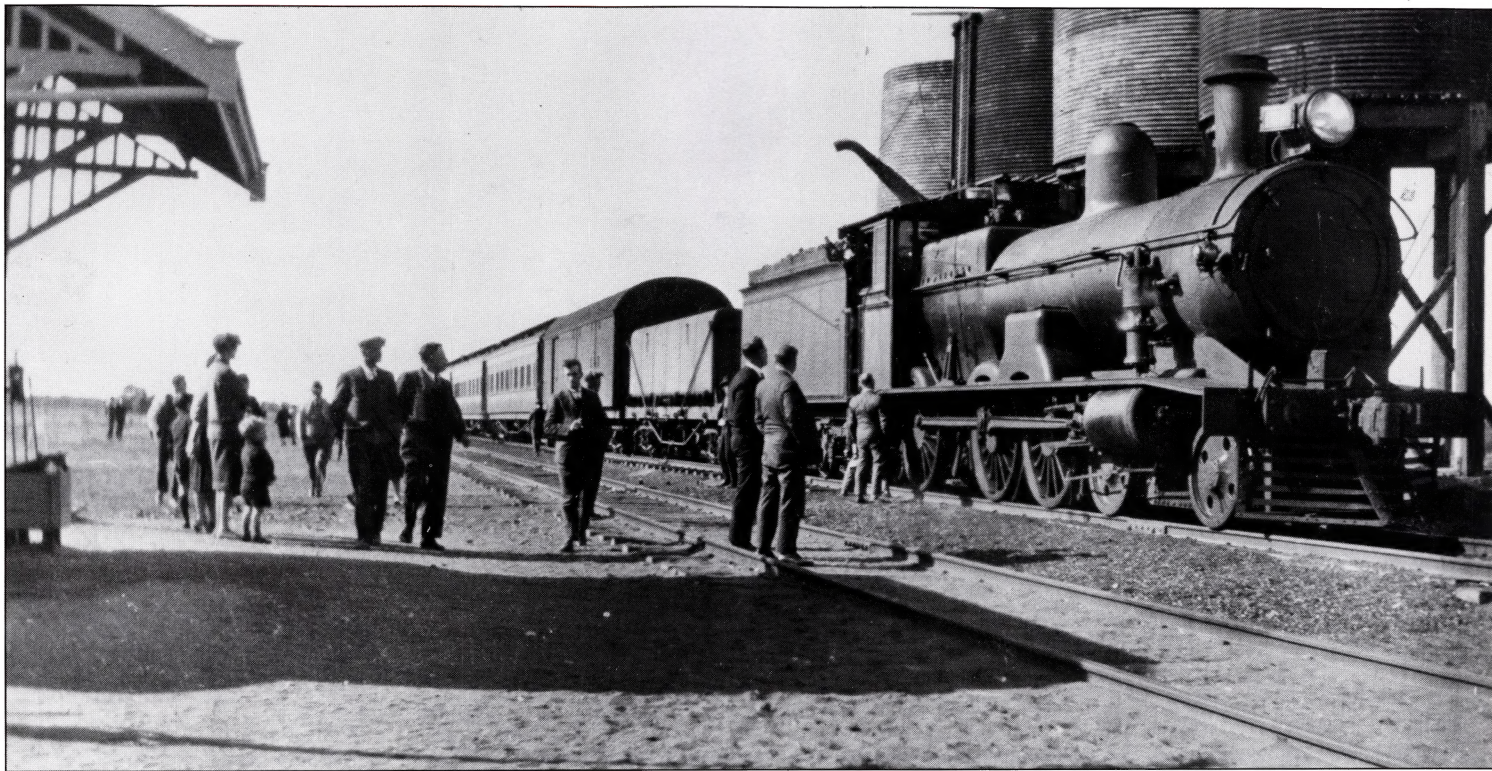
The major objectives of Intermodal 90 were to assess just how far political and commercial action will allow the potential of better technology to shape our transport future, and to assess the

role of intermodal as Eastern European frontiers change.

The conference was attended by over 800 delegates from 45 countries.

If you are interested in receiving a copy of Intermodal 90 please contact Kate Langmuir, at CS Publications, McMillan House, 54 Cheam Common Road, Worcester Park, Surrey UK KT4 8RJ, Tel. +44 81 330 3911. Fax. +44 81 330 5112. □

REVIEWS



Road Through The Wilderness by David Burke

*This is how early travellers remember the transcontinental
— an isolated stop to take on water while they stretch
their legs.*

New South Wales University Press. \$39.95.

By pick and shovel carthorse and camel

The transcontinental railway service across Australia is destined for a future role in luxurious passenger and efficient long-train freight haulage optimistically geared to the expectations of the 21st century, and a far cry from its humble origins only 74 years ago.

By Federation the concept of a rail service west represented in both physical and spiritual form the reality of a single and united Commonwealth of Australia. In fact, the promise to build it helped to induce a hesitant Western Australia to become part of the Commonwealth.

So it is with a great deal of contemporary as well as historical

interest that David Burke's new book recounts the struggle to complete 1,700 kilometres of line to the last dog-spike and flashplate.

Many thousands of men laboured in an arid and almost uninhabited wilderness through the searing heat of day and biting cold of night equipped with very basic worktools. Thirty lives were lost during the five-year construction period. The Great War (1914-18) in Europe lent emphasis to their efforts as the line was considered as much an aid to defence as to trade and tourism.

No project of such magnitude could be devoid of political intrigue, vacillation, vision,

courage, and even corruption and all receive their fair measure in this well-researched account supported by numerous illustrations which show not only the human endeavour but something of the enormous scale of the operation.

At the height of construction more than 3,000 men were employed in the two self-contained forces reaching east and west towards each other across the desert landscape. Allegations of mismanagement, shady deals, and mistakes were a predictable outcome of the political debate surrounding the use of day (or departmental) labour in competition with the letting of contracts.



REVIEWS



These were the scenes at the turn of the century in the desert sands of Western Australia when rail gangs working from the east met those working from the west to finally complete the transcontinental rail line. Thirty lives were lost during the five-year construction period.



▶ In the process the politicians dug up scandals, and established royal commissions.

The transcontinental consumed 2,500,000 wooden sleepers and 140,000 tons (142,247 tonnes) of rail and involved shifting five million cubic yards (4,572,000 cubic metres) of rock and earth. Built with pick and shovel, carthorse and camel, it was one of the last engineering works of the early part of the century completed with a minimum of mechanical assistance.

In one four-week period the plate-layers installed 75.5 kilometres of track, and completed 712 kilometres in one year to create record construction rates for Australia. Across the Nullarbor they built the world's longest straight railway – 478 kilometres without a curve.

Construction of the transcontinental line spanned a time-frame in history replete with world events of much more momentous proportions such as the progress of the war, 38,000 Australian casualties at the battle of Passchendaele, the bombing of London by Zeppelins, a collapsing Imperial Russian army and the revolution at St Petersburg.

When work began in a cutting behind a church at Port Augusta

in 1912, Burley Griffin had just won the competition for the design of Canberra, the first big ships for the navy were preparing for the voyage from British slipways, the site of the Newcastle smelters was chosen, and the Commonwealth Bank opened for business.

The official opening of the line was cancelled because of the war. Politicians were distracted facing another referendum on conscription. The King sent a congratulatory cable and modest reports appeared in the newspapers.

On 22 October 1917 at 9.32 pm (32 minutes late) the first transcontinental express steamed from Port Augusta. To the singing of God Save the King, the pistons slowly moved, the wheels began to turn, and with a swirl of steam and smudge of black smoke, Australia's first train from east to west was on its way.

Eight large bogie coaches made up the train, five sleeping cars, a dining car, lounge car, the Governor-General's car (but not the Governor General), a luggage van and brake van. The front van was stacked with mail bags from Melbourne and Adelaide. "Commonwealth Railways" in fresh gold paint adorned the carriage flanks.

A Queensland-built 10-wheel locomotive G21 headed the train.

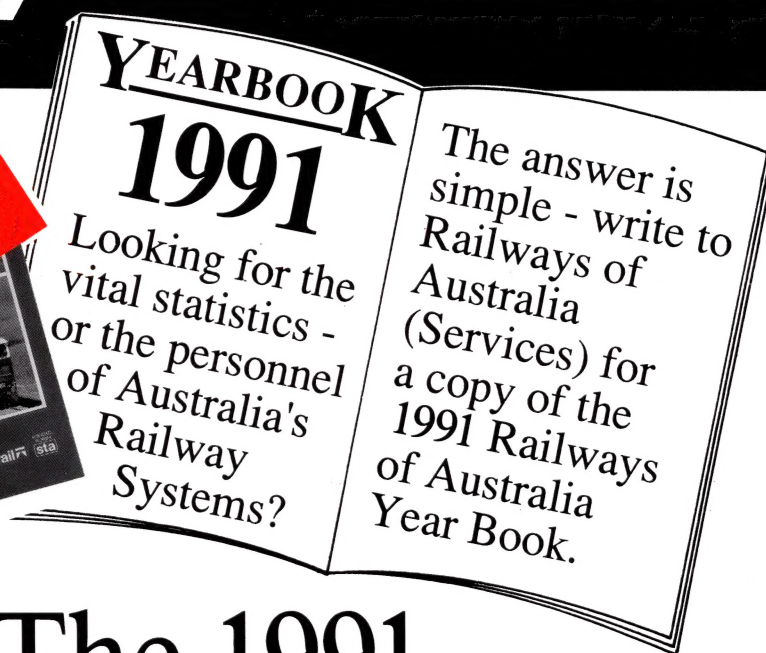
The transcontinental dream was fulfilled with no wide rivers to bridge, no precipitous mountains to cross, no dense forest barring the way. It was a uniquely hostile Australian terrain, devoid of a single running stream, of habitation, of anything which man might harvest, parched and desolate through which the line was run.

In the foreword to the book Dr Paul Wild, AC, CBE, FRS, chairman of CSIRO from 1978 to 1985 when he conceived the concept of a Very Fast Train system between Sydney and Melbourne, parallels the machinations of those early transcontinental days with the knocking, scepticism, faint-heartedness and petty jealousies enmeshed today in the VFT debate.

The main challenge, he says, is not the creation of a colossal engineering task, but the marshalling of the will of a nation.

Road Through The Wilderness has just been released and is available through most book retailers. Price \$39.95 (300pp) ISBN 0 86840 140 4. □

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